A *PHANTOM* FIND P. 94 • EVEL KNIEVEL'S BIKE P. 30

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MARCH 2008

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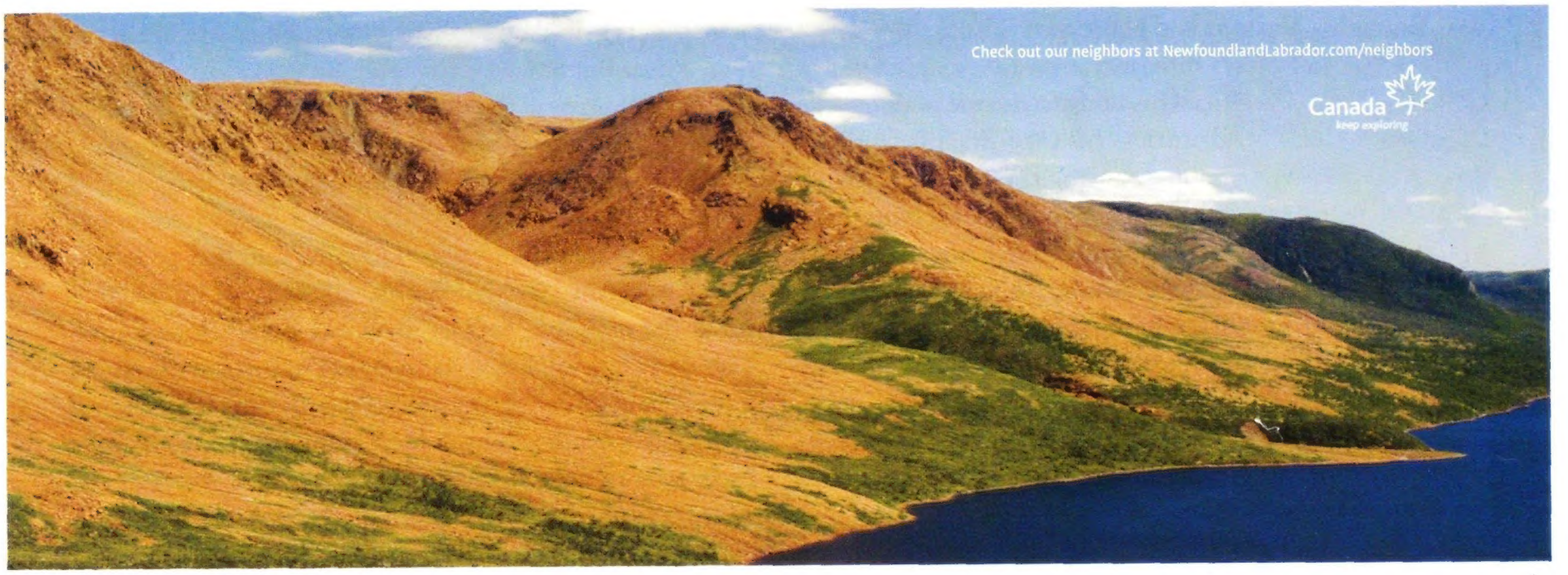

feeling you get when you take your first step on this ancient plateau, towering thousands of feet over the Atlantic in Gros Morne National Park, a world UNESCO Heritage site. And yet, as these cliffs dwarf your very existence, you'll somehow feel at peace with the world. Especially with generous amounts of fresh air filling wide open spaces – more than enough, certainly, for a complete purge of body, mind, and soul. Until, at the very least, you return to your B&B to rest up for yet another journey to the only place in North America where you can walk on the center of the earth.

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CANADA

Smithsonian features

MARCH 2008 · VOLUME 38, NUMBER 12

A tiny nation of 700,000 people positioned uneasily between two giants, Bhutan was almost as isolated as the mythical realm of Shangri-La, to which it is still compared.

"THE CHANGING FACE OF BHUTAN," PAGE 72

38 Rare Breed

Conservationist Laurie Marker probably knows more about cheetahs than anyone. But is it enough to save them?
BY GUY GUGLIOTTA / PHOTOGRAPHS BY SUZI ESZTERHAS

48 The Arranger

For Quincy Jones, who turns 75 this month, life's been one long, ascending riff, from band trumpeter to composer and producer to creative consultant for the Beijing Olympics
BY LYNDON STAMBLER / PHOTOGRAPHS BY WILLIAM COUPON

DESTINATION ASIA

56 Revolutionary Road

Four decades ago, the Ho Chi Minh Trail helped Hanoi win the war in Vietnam. Now government planners are banking on it to fuel the country's booming economy
BY DAVID LAMB / PHOTOGRAPHS BY MARK LEONG

68 Springs Eternal

Tucked away in the mountains, Japan's soothing, mineral-rich thermal baths have been reviving the weary for ages
BY ANDREW CURRY / PHOTOGRAPHS BY PETER BLAKELY

72 The Changing Face of Bhutan

Isolated for centuries, the tiny Himalayan kingdom is at last opening itself up to the outside world. But will it lose its rich culture in the process?
BY ARTHUR LUBOW

80 Forbidden No More

Behind the gates of Beijing's imperial palace complex—much of it recently restored—lie the relics of a privileged ancient culture, including the 13,844 dragons in the magnificent Hall of Supreme Harmony
BY PAUL RAFFAELE

THIS PAGE: A performance of the Dance of the Drum from "Dramitse" at a Buddhist festival in Paro, Bhutan. Photograph by Blaine Harrington III / Corbis.

COVER: An adult female cheetah scans the plains at dusk in Kenya's Masai Mara National Reserve. Photograph by Suzi Eszterhas.

Smithsonian departments

MARCH 2008 · VOLUME 38, NUMBER 12

Bighorn sheep are a majestic symbol of the mountainous West. Two centuries ago, 1.5 million to 2 million bighorns lived in North America; today, a mere 28,000 remain.

"TRACKING THE BIGHORNS," PAGE 21

14 INDELIBLE IMAGES TWO FOR THE ROGUES
To document the biker culture of the mid-1960s, photographer Danny Lyon joined the pack
BY STEPHEN FRANKLIN

21 PHENOMENA TRACKING THE BIGHORNS
A study of the sheep in Montana's Glacier National Park is providing crucial new insights about their movements, behavior and genetic makeup
BY BECKY LOMAX

94 PRESENCE OF MIND A RECORD FIND
Happily for lovers of old music, not everything in the 1910 novel *The Phantom of the Opera* is fiction
BY MICHAEL WALSH

6 FROM THE EDITOR GAME CATS
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12 WILD THINGS
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112 THE LAST PAGE ELECTROCYBERTRONICS

THIS PAGE: The sure-footed bighorn thrives in rocky, mountainous terrain (a ram near Blacktail Canyon above the Colorado River in Grand Canyon National Park). Photograph by John Dittli.

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Uncover the bittersweet story of this ancient treat at **Smithsonian.com/chocolate**

Rhino Man
Find out about wildlife biologist Hemanta Mishra's efforts to save the endangered Indian rhinoceros in Nepal at **Smithsonian.com/rhino**

Conquering Everest
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FROM THE EDITOR

Game Cats

Kanini and Quincy

BY CAREY WINFREY

THE FIRST TIME GUY GUGLIOTTA met Laurie Marker she was teasing Kanini, her pet cheetah, with a rag attached by string to the end of a pole. Gugliotta, who wrote our cover story ("Rare Breed," p. 38), thought immediately of *Felis catus*. "Cheetahs jump up and down and try to cup the rag with their paws just like a house cat," he says. "When they're looking for attention, they'll run back and forth and rub against your pants legs to get you to pet them. They purr, and they purr really loud. Of course, they're 75, 80, 90 pounds and you always have to keep in mind that they are wild animals." The more time Gugliotta spent with Marker, the more he came to appreciate her know-how. "She knows *everything* about cheetahs," he says. "But also she understands the economics of Namibia. She understood that to be successful she was going to have to convince the farmers"—who tended to kill cheetahs to protect their livestock—"that living with wildlife is a good thing. It's quite a revolutionary thought: learn to live with wildlife, and the wildlife will do you a good turn. She's making it work."

Gugliotta with Kanini: "They purr really loud."

LAURIE MARKER

LYNDON STAMBLER had been trying to get some face time with Quincy Jones for almost three years. Jones was game, Stambler says, but "he's a really driven person, and he finds it hard to slow down because his whole life he's been moving from place to place, project to project and band to band." When the two finally sat down to talk, Stambler found some contradictions in Jones' personality. "He is very interested in technology and the latest developments. Yet, he's a guy who never learned to drive a car. And that relates to a traumatic automobile accident he was in when he was 14. I think he feels things deeply—that things that happen in his life affect him profoundly." Stambler's profile of Jones, "The Arranger," begins on page 48.

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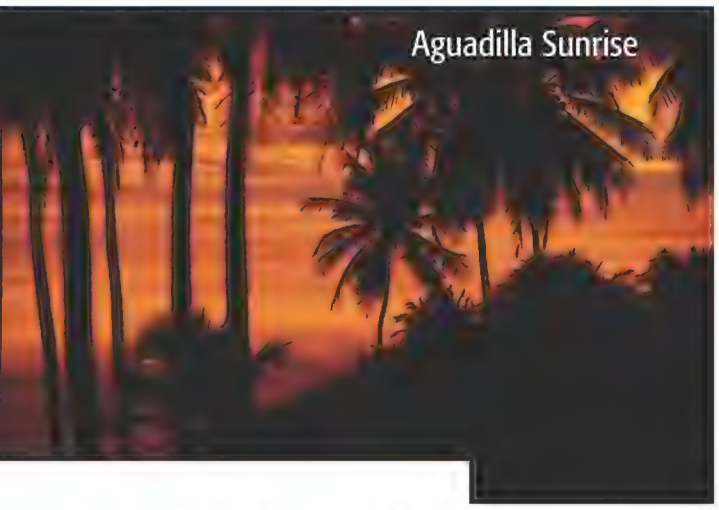

Porta del Sol

Puerto Rico's Western region, better known as **Porta del Sol,** is home to some remarkable architecture and historic landmarks. Here are just a few examples:

The town of San German: San German – Puerto Rico's second-oldest town – has an unusual two-plaza layout, **(Plazuela Santo Domingo and Plaza Francisco Mariano Quiñones),** and a variety of Mission, Victorian, Creole and Spanish Colonial architecture.

Capilla de Porta Coeli (Heaven's Gate Chapel): Built in 1606 as a chapel and convent, this beautiful edifice now serves as a small museum housing religious art, colonial paintings and other century-old treasures.

Palacete Los Moreau: Located in Moca, this French Provincial-style mansion sits on more than 100 acres of lush gardens and is on the National Historic Register.

Cabo Rojo Lighthouse: Overlooking the ocean atop 200-foot high limestone cliffs, this lighthouse was built in 1881 and was automated and electrically charged in 1967. It is considered to have some of the most breathtaking ocean views on Puerto Rico's West coast.

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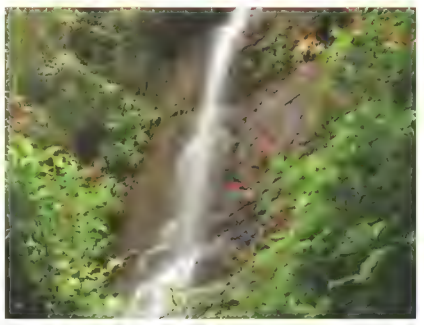

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LETTERS READERS RESPOND TO THE **JANUARY** ISSUE

Smithsonian
1908
Aeroplanes! Skyscrapers! The race to the North Pole! Mobile phones? Return to the year when astonishing inventions, predictions, stunts and breakthroughs propelled America into the modern age
BY JIM RASENBERGER
Smithsonian
1908: The Year That Changed Everything
One Man's Quest to Find Columbus' Fort
Van Gogh's Letters to a Protégé
Monkey Think, Monkey Do
David Maisel's Troubling Earth Images
28 PLACES TO SEE BEFORE YOU DIE

What a great story ("1908"), but why did author Jim Rasenberger end it by dwelling on the negative consequences of the technologies first developed then? I won't buy into that state of mind. I, for one, would much prefer living in 2008 and I expect great things for the future. This is an imperfect world and country, but let's shelve the doom and gloom.

JOHN F. RUNION, BINGHAMTON, NEW YORK

DEFENDING NORMAN MAILER

FIRST, A DISCLOSURE: I am Norman Mailer's authorized biographer. When Lance Morrow speaks about Mailer's works ("Sound and Fury"), he is disingenuous, at best. Morrow says that Mailer's masterpiece, *The Executioner's Song,* was assembled from interviews with convicted murderer Gary Gilmore by Lawrence Schiller. True, but Mailer also did hundreds of interviews and spent six months in Utah and dug through court records and psychiatric reports and the like. Shame, shame, Morrow for throwing trashy half-truths on the grave of one of our greatest writers. Irreplaceable and unprecedented, Mailer will long be remembered as the chronicler of the American Century.

J. MICHAEL LENNON
PROVINCETOWN, MASSACHUSETTS

LANCE MORROW'S essay gave a well-grounded, brilliant analysis of Mailer. I agree with him that, as time goes by, Mailer's works will have an almost total irrelevance.

BEVERLY FOWLER-CONNER
CAMP HILL, PENNSYLVANIA

BRAGGING RIGHTS

I'VE BEEN LUCKY to have seen or been to all of the places you chose in "28 Places to See Before You Die." To round out your selections, I would add the Cappadocia region of Turkey and what for me is the most beautiful place on earth, Vietnam's Halong Bay in the Gulf of Tonkin.

MARGARET GAMPELL
PALO ALTO, CALIFORNIA

I MUCH ENJOYED the article about places to see before you die, and I understand that all such lists generate suggestions and complaints. However, I did notice that the number of man-made locations (19) far exceeded the natural (9). I was disappointed not to see Mounts McKinley or Everest, Victoria Falls, Lake Baikal, the Red Sea, the polar ice caps, the Nile River and other natural attractions that, to my mind, surpass any constructed places.

JIMMY THOMAS
JONESBORO, ARKANSAS

DUE TO THE ACCELERATED degradation of earth's environment, future articles about places to see before you die might more realistically be titled, "Before *They* Die."

DOUGLAS W. BENOIT
WINTHROP, MAINE

METRIC PERSUASION

AS A RETIRED science teacher, I was amazed to read "The Coldest Place" and find all the temperatures given in degrees Fahrenheit. Chemists, physicists and other scientists, not to mention the rest of the world that relies on the metric system, measure temperatures using the Celsius (centigrade) or Kelvin scale. Only the United States retains "English" units. Join the modern world!

JOHN FARNSWORTH
CANANDAIGUA, NEW YORK

CORRECTIONS:

The ships pictured on page 44 were not part of the Great White Fleet of 1908, as described. They were cruisers and gunboats from an earlier period.

The Turkish ruins shown on page 91 are not Ephesus, but, rather, the Temple of Trajan at Pergamon.

The temperature chart on page 21 should have listed that water boils at 212 degrees Fahrenheit and that the moon's daytime surface reaches 253 degrees *above* zero.

"Among the Spires" lost track of time: prior to the standardization of time in England in the 19th century, when it was 9:05 p.m. in Greenwich it was 9 p.m. in Oxford. We regret the errors. —Ed.

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WILD THINGS

LIFE AS WE KNOW IT

BY AMANDA BENSEN, KENNETH R. FLETCHER, T.A. FRAIL, KAREN LARKINS AND SARAH ZIELINSKI

HOW TO KEEP WHALE SHARKS STRAIGHT

The spots on a whale shark look so much like constellations of stars that the Australian conservation group Ecocean adapted Hubble space telescope software to identify individual animals by their markings. The researchers found that the whale shark population near Ningaloo, where the 20-ton, filter-feeding giants are an ecotourism draw, is growing.

THANKS TO GRANDMA

Doting grandparents are surprisingly rare, known mainly among baboons, lions, pilot whales and people. Now there's a bird: the Seychelles warbler. In a 24-year study, scientists in the Seychelles Islands found that when a female warbler loses her territory to a daughter, she may help feed her grandchicks.

EVOLUTION BY ASTEROID

What caused the massive proliferation of new sea life (right: clamlike brachiopod fossils) 470 million years ago? Scientists at the University of Lund in Sweden and elsewhere have a new suspect: asteroids. The "Ordovician biodiversification" coincided with a hail of debris from the biggest asteroid breakup in the past few billion years, the researchers say. The impacts (inset) may have created new niches for life.

Observed

NAME: *Neoscona punctigera*, a nocturnal orb-weaving spider found in Asia.

THE TRAP: *N. punctigera* hides till sundown, weaves its web and waits for a meal (usually a moth) to drop in. But why would prey do that?

THE BAIT: Spots of color on the spider's otherwise drab abdomen probably lure prey, researchers at two Taiwanese universities say.

THE SWITCH: The spider's prey can see well enough in the dark to find night-blooming flowers whose nectar they eat, the researchers determined, and the spots look like these flowers. Many animals use visual lures during the day, but this study documents one of the few known to work at night.

FAMILIAR TURF

When times are tough, male chimpanzees go home, according to a study of more than 30 years' worth of records from Tanzania's Gombe National Park. Males abandon social groups when food is scarce and return to territories where they were reared by their mothers. Why? The researchers speculate the chimps know best where to forage on their old stamping grounds.

To see more images of whale sharks, visit Smithsonian.com/wildthings

GARY BELL / OCEANWIDEIMAGES.COM; DAVID HOSKING / ALAMY; DENIS SCOTT / CORBIS; SINCLAIR STAMMERS / PHOTO RESEARCHERS, INC.; ANUP SHAH / NATUREPL.COM; JIN-NAN HUANG

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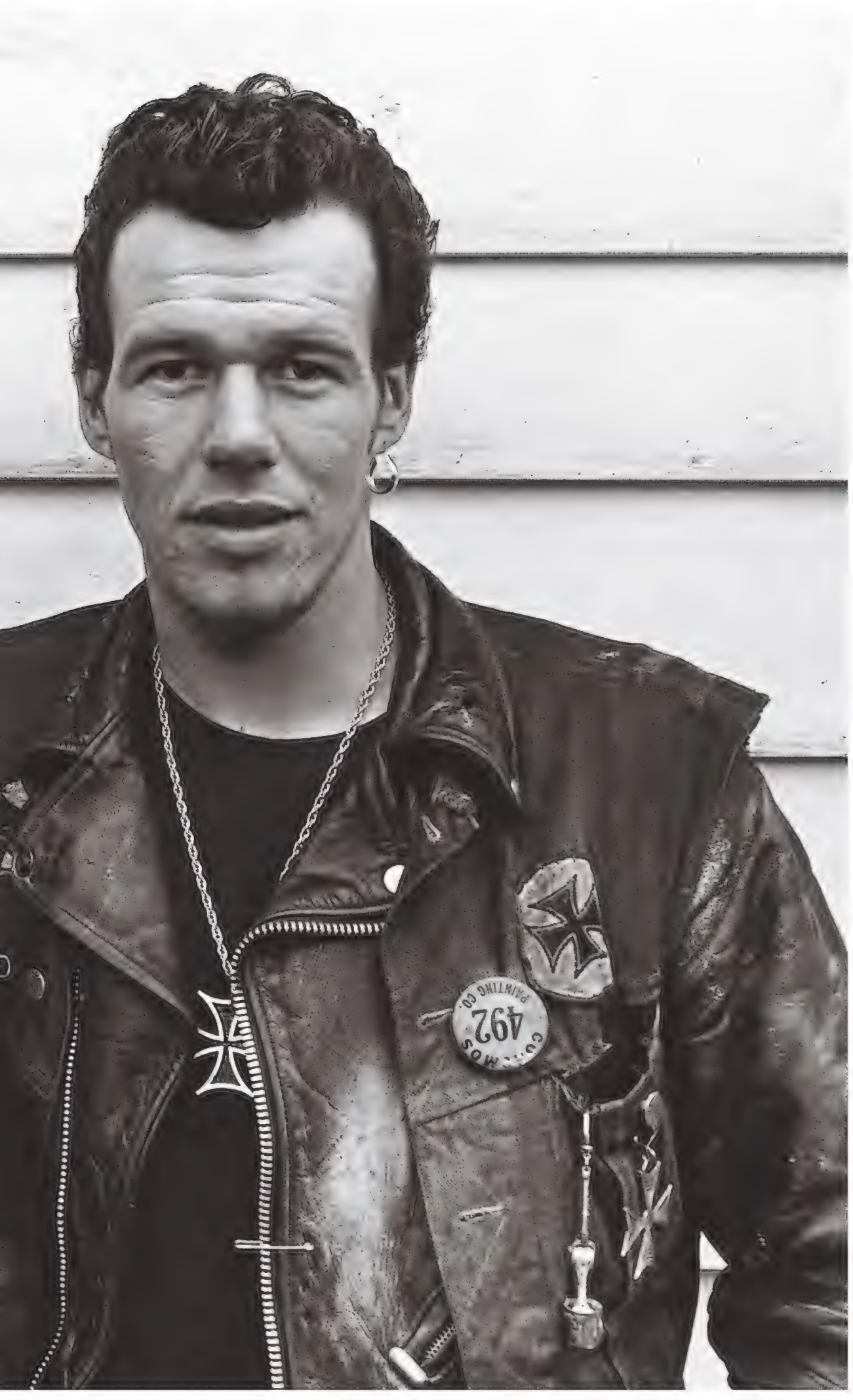
INDELIBLE IMAGES

"Renegades," says a former Indiana motorcycle-shop owner of bikers he knew, such as Sparky (Charles Ritter, left) and CowBoy (Irvin Dunsdon), in 1965.

Two for the Rogues

Sparky and CowBoy were fast friends, but Danny Lyon was able to keep up with them **BY STEPHEN FRANKLIN**



COWBOY AND SPARKY, two pals on bikes. They've just been to a motorcycle race in Schererville, Indiana, and their girlfriends will soon get off work from the Dairy Queen. It is November 1965, and CowBoy—Irvin P. Dunsdon, who uses the capital B to this day—is 23 years old. He feels he's on top of the world.

He and Sparky—Charles Ritter—met in the Army and bonded instantly. When CowBoy got out of the service in 1964, he moved not to Utah, where he came from, but to Gary, Indiana—Sparky's hometown—so he could be there when Sparky got back from Vietnam a year later.

Now, in '65, they stick up for each other. They take no grief from anyone. They share the joy of biking on the open road. They belong to the Gary Rogues, a local motorcycle club.

They are posing for Danny Lyon, who liked the soft light and the clean, white background of the wooden shed behind them. Lyon, 23, had earned a bachelor's degree in history from the University of Chicago and was a staff photographer for the Student Nonviolent Coordinating Committee, (SNCC) the organization of students who threw themselves into the fight for civil rights in the 1960s. Many of the photographs in *The Movement*, a 1964 book about that struggle, are Danny Lyon's.

Lyon has been hanging out with the Chicago Outlaws, riding a 1956 Triumph and lugging a tape recorder. Today, he recalls the bikers as "dynamic, romantic and a powerfully attractive group to present through photog-

raphy." He will spend some two years with the Outlaws, taking pictures of them and other motorcyclists, collecting interviews and pioneering a new kind of journalism about life outside the mainstream, an immersive enterprise in which the journalist becomes part of the scenery. His first solo effort, *The Bikeriders* (1968), will be the first photo book about bikers.

For some of the subjects in it, the book will become a kind of album, a document of their swagger and possibility. "It was a brotherhood. It truly was a club then," says Roy Renshaw, who was 17 in 1965 and known as Rawhide. Says John Goodpaster, who owned a motorcycle shop in northwest Indiana and competed in races with the bikers, "They were just renegades. Bohemians, I would call them."

Lyon says he doesn't remember anything criminal about the Chicago Outlaws. Still, his interviews caught the mood of a gritty blue-collar world with shadows looming. "Like he's wild," an Outlaw's wife told him. "I used to think he'd get over that. But he don't. And he's got a vicious temper."

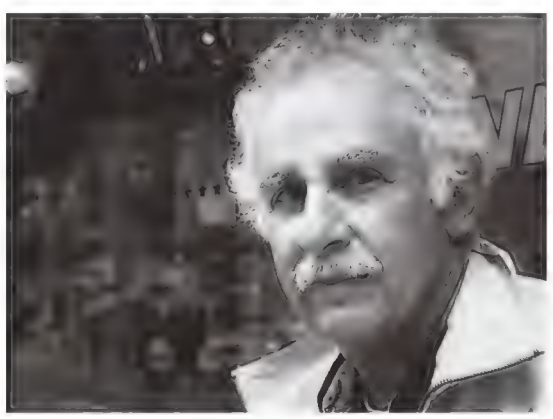
By the early 1970s, the Outlaws in Chicago, and in other cities and towns, had begun a long slide toward crime and violence. In 2001, the club's international president, Harry "Taco" Bowman, would be sentenced to life in prison on racketeering and drug charges; his successor, James "Frank" Wheeler, would get the same sentence on similar charges in 2004. But all of that was in the future as CowBoy and Sparky posed for Danny Lyon back in 1965.

Six years later, CowBoy went home to Utah, saying he wanted to be near his family. In the next year or so, he says, Sparky moved, maybe to Minnesota, and the pair lost touch. (Efforts to reach Sparky for this story were unsuccessful.) In 1975, CowBoy and two other men were arrested and charged with killing a 36-year-old man who had been living in protective custody in Price, Utah, after the man's testimony helped convict a motorcycle club leader on drug charges in Salt Lake City. The man was beaten, stabbed, choked and shot 14 times.

"The only time I ever hurt anybody was that time," CowBoy says.

Convicted of murder in 1975, CowBoy (at home in Salt Lake City) served 20 years in prison. After he was released, he sought two things: a job and another motorcycle.

Convicted of murder and sentenced to death, CowBoy and the other two men awaited the firing squad. At one point, CowBoy came within three days of execution, but legal challenges by his attorneys saved him. In 1980, the three men's sentences were reduced to life imprisonment after a Utah court ruled that the prosecutor failed to provide some evidence to defense attorneys.



In riding with the bikers, Lyon (in 2002) helped propel a new form of journalism.

In prison, CowBoy says, he decided that the way to do time was to avoid distractions, so he discouraged visitors. His prison record reflects no major problems. He was paroled in 1995.

"I told the state board that [the man I killed] had it coming," CowBoy says, recalling his admission of guilt to state officials before his release. The man had been dealing drugs and hanging around young girls, he says, and besides, "I knew the guy he informed on." CowBoy admits he's done some wild things, but he insists that "the only time I ever hurt anybody was that time."

After getting out of prison, CowBoy found work as a sandblaster and industrial steel painter, largely in Utah. He also bought another bike. He ditched the job when he retired in 2004. He still has the bike. On a motorcycle, he says, with the wind in your ears, "you just leave society behind you."

STEPHEN FRANKLIN *has been a foreign correspondent for the* Chicago Tribune, *but he has never ridden a motorcycle.*

CHRIS JAMESON; ELENA URSCHEL / MAGNUM; PP. 14-15 DANNY LYON / MAGNUM / EDWYNN HOUK GALLERY

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THIS MONTH IN HISTORY

MARCH ANNIVERSARIES
MOMENTOUS OR MERELY MEMORABLE

BY ALISON McLEAN

90 YEARS AGO
TIME AND AGAIN

Congress enacts daylight saving time on March 19, 1918. Backers herald benefits, from increased production of war materials to improved worker health and morals. But farmers cry foul, and with World War I's end, national DST is repealed in 1919. Implemented locally, DST makes scheduling—of buses to broadcasts—confusing until uniform start and end dates are declared in 1966. In 2008, all states but Arizona and Hawaii spring forward March 9.

90 YEARS AGO
FLU FIGHTERS

Army cook Albert Gitchell falls ill at Fort Riley, Kansas, March 11, 1918, with the first case of an influenza that quickly spreads worldwide (precautions in Seattle, above). By the pandemic's end in 1919, more than 50 million people die. In 2005 scientists discover the flu strain may have been avian; its source remains unknown.

KING KONG
avec
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DIALOGUE FRANCAIS de PAUL BRACH
Distribué par la COMPAGNIE UNIVERSELLE CINÉMATOGRAPHIQUE
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75 YEARS AGO
GREAT APE

King Kong takes on New York City at its première there, March 2, 1933. The film's special effects—including stop action photography, miniaturization and rear projection—turn an 18-inch rabbit-fur-covered model into a "menace extraordinary" and set a new standard for animation. While provoking, according to one reviewer, "many a giggle to cover up fright," *Kong* grosses $90,000 its opening weekend—a new record.

50 YEARS AGO
OUT IN THE COLD

After two years of preparation and a 99-day, 2,158-mile journey, 12 men (led by British explorer Vivian Fuchs, far right), make the first crossing of Antarctica, March 2, 1958. The Commonwealth Trans-Antarctic Expedition, driving Sno-cats—which they must keep extracting from crevasses—is aided by a team (led by Sir Edmund Hillary, near right) coming from the opposite direction laying in supplies. The feat will not be repeated until 1981. Fuchs dies in 1999, Hillary in 2008.

70 YEARS AGO LUCKY SEVEN

Saudi Arabia strikes it rich when large quantities of accessible oil are discovered March 4, 1938. More than 1,500 barrels of oil gush that day into the 4,727-foot-deep Dammam No. 7 well, dug by American wildcatters working in the area since 1934. Today, at more than eight million barrels a day, Saudi Arabia is a top world producer of oil; each day the country ships 1.5 million barrels to the U.S., the world's largest consumer.

75 YEARS AGO
IT'S OFF TO WORK WE GO

On March 31, 1933, President Roosevelt signs the Civilian Conservation Corps into being. The CCC hires some three million unemployed men (ages 17 to 28) over nine years for public works. They plant 3 billion trees, lay 97,000 miles of road and drain 84 million acres of farmland before World War II ends the job shortage.

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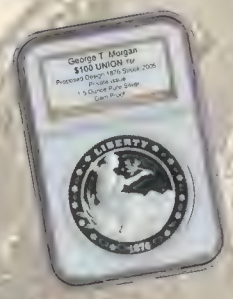

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Tracking the Bighorns

Where do the elusive mountain climbers go? Researchers have finally learned some answers **BY BECKY LOMAX**

AS THE FIVE OF US hiked around Rising Wolf Mountain, a monolith of ice-chewed rock in the southeast corner of Glacier National Park, we could hear clinking and rattling somewhere in the talus slopes above us—miniature rock slides unleashed by hooves. Kim Keating, a wildlife biologist with the Northern Rocky Mountain Science Center in Bozeman, Montana, was in the lead. He has studied Glacier's bighorn sheep for two decades, collaring 99 since 2002 and tracking them with GPS recorders and radio telemetry. The tranquilizer dart he carried had enough of the narcotic carfentanil and the sedative xylazine to pacify a 300-pound sheep. Because the dose is lethal to humans, Keating—and only Keating—would handle the dart.

The low-angled autumn sun lit up yellowing larch trees like candles. Stephanie Schmitz—one of three fieldworkers assisting Keating—spotted a small herd of bighorn in a golden meadow up ahead. Keating loaded his dart rifle, then began edging toward the animals. They raised their heads. Keating stopped, pretending to be doing nothing. He sat down for a few minutes. "To avoid startling them, you want the sheep to see you," he explained later, "but you have to be willing to walk away if the shot isn't right."

The sheep dropped their heads to munch on grass. Keating crept into shooting range—20 yards away or less—aimed and fired. A few sheep ran; some stared, befuddled. A ewe staggered.

The crew's first job was to prevent the ewe from tumbling downhill. "If they get going, they'll roll to the bottom of the mountain," Keating said. Assistant Josh Brown blindfolded the groggy animal, holding her head erect by the horns. Keating collected a snip of hair, a vial of blood and a swab of saliva. He counted two growth rings on her horn: she was 2 1/2 years old. Collar number 118, affixed with a radio transmitter and a GPS recording unit, was cinched around her neck. Keating injected the ewe with a

D. ROBERT AND LORRI FRANZ

drug to bring her out of her stupor. After a few wobbly steps, she ambled off to join the herd.

Bighorn sheep, *Ovis canadensis*, are a majestic symbol of the mountainous West. They browse at high altitudes and in steep, rocky areas from Texas to British Columbia. Rams' horns curl around their eyes and grow up to 45 inches long. Males butt horns to establish dominance during the fall rut. Ewes sport shorter, spiked horns similar to a mountain goat's. From their first days of life, bighorns are sure-footed enough to scale cliffs too steep for most predators to follow.

Two centuries ago, an estimated 1.5 million to 2 million bighorn sheep lived in North America; today, a mere 28,000 remain. Diseases caught from domestic sheep, competition from livestock for forage, and trophy hunting for their horns caused populations to plummet. Bighorns graze in mountain meadows, habitat that is being lost to expanding forests, which are growing beyond their historic boundaries in part because the wildfires that used to hold them in check have been suppressed. Glacier National Park, home to 400 to 600 bighorn sheep, lists the animal as a "species of concern," that is, at risk of becoming endangered.

To protect bighorns, Keating says, we have to understand them better. That's his mission. Each battery-powered GPS unit records the animal's location every five hours for a year. Then, on a programmed day, the collar drops off; Keating must go find it. "Retrieving a collar with its 1,600 or more stored location points is like Christmas," Keating said. "You never know what you'll find."

In the past few years Keating's collars have recorded a great deal of new information about bighorn behavior in the park, including previously unknown wintering, rutting and lambing sites. The devices have shown that bighorns travel greater distances, up to 20 miles, and visit mineral licks more often than researchers realized. The work has also revealed just how sheep-like bighorns can be. That is, they're creatures of habit. "They seldom explore new habitat," Keating says. They travel to and from their ranges for wintering, lambing and browsing along paths used by the herd for generations.

NORTH OF RISING WOLF MOUNTAIN is one of the park's historic tourist hubs, called Many Glacier. Four valleys laced with glaciers and alpine lakes come together here. Bighorns are common in this part of the park, and wildlife

"National parks in general don't have good inventories" of wildlife, says Kim Keating (left: counting growth rings in a ewe's horns, with Josh Brown and Stephanie Schmitz). Now Glacier National Park's bighorns (top: a radio-collared ewe) are better understood.

BECKY LOMAX (2)

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No more than 600 bighorn (rams living up to their name) are left in Glacier National Park.

biologists have studied them here since the 1920s. Nobody had ever reported sheep wintering on Mount Allen, a large buttress on the main valley's south side. Yet that's where collars tracked wintering bighorns. GPS points also debunked a long-held belief that bighorn on adjacent slopes constituted a single herd; instead, sheep stay in separate herds throughout the year. Keating laughs: more than eight decades of bighorn research in Many Glacier has been overturned by fist-size GPS units.

He and geneticist Gordon Luikart of the University of Montana are getting even more bighorn insights from DNA samples. For instance, a preliminary study suggests that two populations living only 25 miles apart—one in Many Glacier and the other in Two Medicine—have surprisingly different genes. The contrast is "approximately the difference you would observe between Asians and Europeans. So it's a very large difference for such a small distance." Keating says it's possible the herds haven't mingled much since the last ice age ended more than 10,000 years ago.

Such isolation might protect the animals. In the 1980s, an outbreak of pneumonia wiped out 65 percent of southern Alberta's bighorn sheep and infected Many Glacier's population. But the Two Medicine herd was spared.

SIX MONTHS AFTER I WATCHED Keating and his crew collar sheep, we met again below Rising Wolf Mountain on a gusty day in May. We hiked up the purple pasqueflower-lined trail, listening to beeping radio signals picked up by three telemetry antennas. "Glacier is one of the worst places for radio tracking," Keating said, turning in a slow circle with an antenna overhead. "The mountainous terrain ricochets signals off cliffs, sending a strong beep from both the collar's location and its opposite direction." Our primary goal was to find six collars, most of which had been programmed to fall off two days earlier.

Our other task was to collect feces from ewe 118, the one we had collared in the fall. Hormone levels in fecal samples, which Keating sends to the National Zoo for analysis, indicate whether a ewe is pregnant. By combining this information with field observations of birth rate and survival rate, Keating can predict the herd's population growth. Ewe 118 was browsing on a steep hillside amid 40 sheep still in their white winter coats. Schmitz and another researcher pursued her across snow, ridges and cliffs. We wouldn't see them again for eight hours.

The rest of us followed well-worn sheep paths uphill—scrambling over rocks, slipping on pebbly scree. We were in prime bighorn territory, and collar 568 lay in plain sight on the rocks. Another collar was buried beneath early winter snows. Keating donned crampons and grabbed an ice ax to ascend a small, steep couloir, and dug it out.

As we trekked out along the muddy trail, sun glinted off Rising Wolf's snow-packed gullies. After 11 hours of hiking in Glacier's moody weather, we'd collected one ewe's scat, counted 84 bighorns and found four of six collars. Keating's pack cradled thousands more bighorn location points full of surprises.

BECKY LOMAX *is the author of* Moon Handbooks: Glacier National Park *and was a hiking guide in the park for 10 years.*

For more images of bighorn sheep, visit Smithsonian.com/phenom

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Around the Mall

SCENES AND SIGHTINGS FROM THE SMITHSONIAN MUSEUMS AND BEYOND

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URSULA MARKUS / PHOTO RESEARCHERS, INC.

MOTHER OF INVENTION

NECESSITY AND COMPASSION DROVE NEONATAL NURSE SHARON ROGONE TO TURN INNOVATOR, EARNING HER A PLACE AT THE SMITHSONIAN PAGE 28

With premature births on the rise, museum officials say the former nurse's story will strike a chord among visitors.

FROM THE CASTLE

Tapestries

BY CRISTIÁN SAMPER

CULTURAL DIVERSITY FLOURISHES. Humans speak and sing in 6,000 languages and cook dishes made of every imaginable ingredient. At its best, America exemplifies that splendid diversity, and for 151 years the Smithsonian has collected artifacts, photographs and films documenting the colorful tapestry of cultures around the globe. Our museum visitors can see Asian craftsmanship, hear contemporary African voices and, when the revitalized National Museum of American History reopens (americanhistory.si.edu/about/renovations.cfm), learn about our nation's own rich cultural variety. This summer, visitors will enjoy concerts, dances, cuisines and more presented by Texans, Bhutanese, African-Americans and others at the 42nd Smithsonian Folklife Festival.

Roberto Clemente (1961) batted a thousand with disadvantaged kids.

As the Smithsonian goes digital, our diverse collections and programs reach nearly 200 million virtual visitors each year. Our more than 13 million photographs record the full range of human activity; the Smithsonian Photography Initiative (photography.si.edu) makes a large selection of these pictures available online, offering interactive programs that feature photography collections from throughout the Institution. The National Anthropological Archives and the Human Studies Film Archives include over 600,000 historical photographs and eight million feet of film and video (http://www.nmnh.si.edu/naa). And Smithsonian Global Sound offers 40,000 tracks of music and oration on its Web site (www.smithsonianglobalsound.org).

Often digital versions of Smithsonian exhibitions are also viewable on the Web. For example, using the National Portrait Gallery's collections, the National Museum of African American History and Culture recently produced its inaugural exhibition, "Let Your Motto Be Resistance: African American Portraits" (http://www.npg.si.edu/exhibit/motto/index.html). Seventy pictures from the show are also on a 15-city tour via the Smithsonian Institution Traveling Exhibition Service (SITES).

The exhibition "Beyond Baseball: The Life of Roberto Clemente," developed by Smithsonian Affiliate Museo de Arte de Puerto Rico in San Juan, is on a five-year national tour organized by SITES with support from the Smithsonian's Latino Center. The show, its podcast and Web site (www.robertoclemente.si.edu), all bilingual, examine this sports legend—one of the first Latinos in the Baseball Hall of Fame—who nurtured athletes and reached out to disadvantaged youths in his native Puerto Rico. Clemente died at age 38, in a 1972 plane crash, while delivering aid to Nicaraguan earthquake victims. We hope audiences of all backgrounds will be inspired by his story of achievement and generosity and that they will experience the many other offerings of the truly multicultural Smithsonian.

CRISTIÁN SAMPER *is Acting Secretary of the Smithsonian Institution.*

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A Neonatal Niche

Medical companies ignored the needs of premature infants, inspiring a nurse to become an entrepreneur

Rogone (in a San Bernardino hospital) says "my babies" motivated the inventions. Her Bili-Bonnet (right) protects infants treated for jaundice.

SHARON ROGONE remembers her first days on the job in an intensive care unit for newborns in San Bernardino, California. Nurses cut tongue depressors in half, creating makeshift intravenous arm boards small enough for infants weighing as little as one and a half pounds. This was in 1980, when neonatal care was fairly new. "We were what I call Rube Goldberg nurses," says Rogone. "We would take things and make things because there weren't any products out there to fit the babies."

That experience prompted the neonatal nurse, with just $2,000 in start-up funds, to become a businesswoman in 1981. Today her company, Small Beginnings Inc., boasts $1 million in annual sales to medical suppliers worldwide. Small Beginnings manufactures specialized products that enhance the health of premature infants while helping to reduce their lengthy (and costly) hospital stays. Case in point is Rogone's Cuddle Buns Diapers. If a diaper is too big, the infant's hips can develop abnormally, requiring physical therapy before he or she can learn to walk. Rogone's diaper design addresses that problem with a narrow, non-expanding crotch.

These products caught the attention of the Smithsonian's Lemelson Center for the Study of Invention and Innovation at the National Museum of American History, which recently acquired some of Rogone's patent and trademark files, along with some of her inventions. "The idea that a neonatal intensive care unit could be a place of invention is intriguing to us because it's an extreme work environment where the nurses have to solve problems on a daily basis," says Maggie Dennis, a historian at the Lemelson Center.

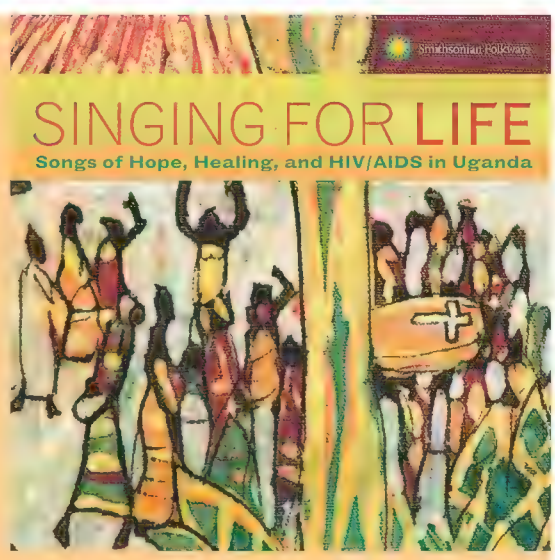
Dennis also believes Rogone's innovations will strike a personal chord with museum visitors, as a growing number of families care for tiny babies. The rate of premature births has risen by about 30 percent since 1981. One contributing factor is the increased use of fertility drugs, which has led to a boom in multiple births. (Multiples are more prone to premature birth than singletons.)

In general, what stimulates invention is money. However, the soft-spoken Rogone, 65, says she was motivated by "my babies," as she calls them. The big companies "will put anything on the market that will barely meet the need and is the most cost-effective."

A construction-paper mask was part of a prototype for her first product, the Bili-Bonnet—a soft cap with a piece of molded foam held in place with Velcro to protect the eyes of babies being treated for jaundice under bright "bili lights" (from bilirubin, a yellow blood pigment). "We would sneak into nursing conferences and pass out our samples," says Rogone. Within a few years, she was mass marketing the masks. Rogone sometimes misses hands-on caregiving, but "I do have this feeling, though, that I'm impacting more babies' lives." KATY JUNE-FRIESEN

JUKEBOX

SONGS TO LIVE BY In Uganda, a national awareness campaign has helped dramatically lower the percentage of the population infected by HIV over a period of 16 years. But grass-roots organizations aren't just telling Ugandans how to fight AIDS—they're also singing about how to do it. "Music has done so much," says one performer. "It's hard for people to go away with no lesson learned." In the song "Bannange Twajjirwa" ("We Have Been Invaded") from the Grammy-nominated Folkways collection "Singing for Life," a women's group describes the horrors of the virus and promotes prevention and testing. Hear it at Smithsonian.com/jukebox. KENNETH R. FLETCHER



Learn more about Rogone's inventions at www.smithsonian.com/preemies

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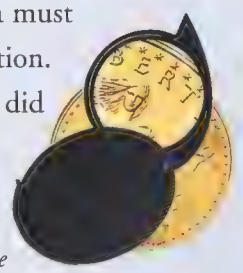

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THE OBJECT AT HAND

Harley-Davidson

NATIONAL MUSEUM OF AMERICAN HISTORY

DAREDEVIL

Evel Knievel took risky behavior (and showboating) to new heights

BY OWEN EDWARDS

IN HIS RED, white and blue leathers, motorcycle stunt rider Evel Knievel was an accident waiting to happen, and his audiences rarely had to wait long. For almost two decades, from the mid-1960s until 1981, the man on the flying two-wheelers turned America into a nation of rubberneckers as he soared over—or not quite over—everything from mountain lions to Mack trucks. Using wooden ramps, true grit and a series of Hondas, Triumphs, Nortons and Harley-Davidsons, Knievel—who died of pulmonary disease this past November at age 69—relentlessly sacrificed his body to the unyielding gods of physics. However dauntless his takeoffs, his landings were often less than happy, causing the *Guinness Book of World Records* to acknowledge his very dubious achievement as the survivor of "most bones broken in a lifetime." (The total—433—hurts just to read, although Knievel claimed far fewer.) After he retired, according to an obituary in the *New York Times*, he described himself as "nothing but scar tissue and surgical steel."

Within the collections of the Smithsonian National Museum of American History (currently closed for renovation), one of Knievel's bikes, a 1972 Harley-Davidson XR-750, is the appropriate monument to a man who could be described as America's last true daredevil. Knievel made several jumps on the Harley, most notably over 14 Greyhound buses at the Kings Island theme park near Cincinnati, Ohio, in October 1975. Today's riders on vastly superior motorcycles turn somersaults in midair; recently an Australian rider leapt 320 feet, twice. But Knievel had about him the garish magnetism of the carnival crazy. On motorcycles that by today's standards were dinosaurs (Tyrannosaurus wrecks?) he would risk just about anything—leaping farther and landing harder—to amaze an audience. And amazed we were; five of his jumps are among the top 20 most-watched programs on "ABC's Wide World of Sports." As Roger White, a curator at the museum, puts it: "Evel was a marvelous sportsman and showman who came along with a very positive message at a time when America was dealing with a lot of difficult problems." Ty van Hooydonk of the Motorcycle Industry Council puts it another way: "Evel was the two-wheel equivalent of Elvis."

As a young high-school dropout in Butte, Montana, Robert Craig Knievel seems to have zigged and zagged from one side of the law to the other with prescient agility. While he was doing time for petty crimes, a warden gave him his rhyming nickname (after dubbing a cellmate "Awful"

Hard landings: Knievel (who prized his Harley, above) once said he was "nothing but scar tissue and surgical steel."

EVELKNIEVEL.COM / K AND K PROMOTIONS, INC.; ERIC LONG / NMAH, SI

Knofel). Knievel later changed the spelling from "Evil" to "Evel" to avoid a Hells Angels image but to not lose a marketing asset entirely.

In 1965, he began stunt riding for small crowds and small change. His most famous jump, on September 8, 1974, was a failed attempt to span the three-quarter-mile Snake River Canyon in Idaho in his SkyCycle X-2, a small rocket with two vestigial wheels

In February 1971, Knievel (in Ontario, California) vaulted 19 Dodge cars.

necessary to qualify it as a motorcycle. A parachute slowed his landing, and he walked away without serious injury. But one of his early showpieces was another snake jump—a 20-foot hop over a box of live rattlers. In the first minutes of the new year 1968, he leapt into national prominence, literally, when he vaulted the fountain in front of Caesars Palace in Las Vegas, badly injuring himself on the landing but acquiring a celebrity that was half attraction and half traction.

Knievel was inducted into the Motorcycle Hall of Fame in 1999. Mark Mederski, director of the museum in Pickerington, Ohio, credits him with an important contribution. "He lived in a time when motorcycling was looked on askance," Mederski says. "When people rooted for him, they were also changing their minds about motorcycles. We don't need that kind of image building now, in part because we had Evel. He was our Wright brothers."

OWEN EDWARDS' *stable of bikes includes a Ducati, Kawasaki, Triumph and Honda.*

WILL MICHELS, 2007 / MUSEUM OF FINE ARTS, HOUSTON; RALPH CRANE / TIME & LIFE PICTURES / GETTY IMAGES; JOHN ALEXANDER, *SHIP OF FOOLS* (DETAIL), 2006-2007 / THE DICKE COLLECTION / SAAM; DANE PENLAND / NMNH, SI; JOHN NELS HATELBERG

Q&A

A retrospective of artist **JOHN ALEXANDER**'s work debuted at the Smithsonian American Art Museum in December and travels next to Houston's Museum of Fine Arts. The artist spoke with the magazine's Jess Blumberg.

YOUR WORK HAS BEEN DESCRIBED AS HUDSON RIVER SCHOOL BY WAY OF EAST TEXAS. DO YOU AGREE? It's certainly true. As a young artist, I always was very impressed with and deeply moved by American landscape painting. It just so happens that most of the great landscape painting done in the 19th century was in the Northeast. Yet I was painting landscapes of the East Texas and Louisiana swamps and bayous that I knew and grew up in. When I finally came to the East, almost the reverse happened. No matter what I painted, whether I was painting the coast of Maine, it ended up looking like the swamps and landscapes I grew up in.

WHAT IS THE SIGNIFICANCE OF THE MASKED FIGURES IN YOUR PAINTINGS (RIGHT: DETAIL)? I often try to make the people in my paintings look like buffoons, and I try to give them a satirical side. By putting masks on them, it makes the person less identifiable, so you—the viewer—can bring your own set of issues to that painting as opposed to me dictating who that is. And don't forget that the cast of characters changes. The mask creates a character that hopefully is timeless.

WHAT HAS BEEN THE DRIVING FORCE BEHIND YOUR PAINTINGS? I was always angry about the destruction of the environment. When I was kid in the 1950s, the parts of Texas where I grew up were fairly pristine, and by the time I was in college, that had all drastically begun to change. The destruction of all that I felt was beautiful and raw was, and still is, a very emotional and driving force in my work.

Visit Smithsonian.com/alexander to read more of our interview with John Alexander

MAKING HISTORY

MYSTERY ILLUMINATED The Hope Diamond is one of the most-viewed museum pieces in the world, but visitors never witness the mysterious red glow it emits when exposed to ultraviolet light. Although researchers have long known about the fiery phosphorescence of the famed blue gem that was once owned by King Louis XV, they were able to study the phenomenon in greater detail thanks to a newly developed portable spectrometer that could be brought into the diamond's vault. The device measured the wavelengths of light emitted by the Hope and 66 other blue diamonds in the Smithsonian and private collections. Scientists were surprised to discover that each produced a unique glow with variations in intensity, color and duration—making it possible to "fingerprint" each stone. Jeffrey Post, curator of the National Gem and Mineral Collection at the Natural History Museum, says that with the growing sophistication of synthetic diamonds, the method might be a "quick and easy way" to pick out fakes and could even help track stolen gems.

BY KENNETH R. FLETCHER

Read current French & Italian bestsellers—without a dictionary!

compartiment réservé reserved berth (on a ship)
plein centre right in the middle
de part et d'autre on either side
cadre frame
sans toile without a canvas
vérins d'échafaudage scaffolding jacks
caisses de belles dimensions nice-sized boxes
entrouverte opening
dépasse sticks out
manche de scie métallique handle of a metal saw
châssis de cornières metal frame
en disgrâce forsaken
Je m'en approche I approach it
deux traces rondes two round outlines
socles pedestals
dont on aurait retiré l'eau from which someone could have removed the water
où serait restée where there could have remained
danseuses étoiles principal dancers (in a ballet company)
c'est pareil quand elles dansent it's the same w
tu finis par suivre you end up follo
vide qu'elles dessinent autour d
around themselves
tournés face au mur turned to fa
dans un ordre croissant de grande
montrent leur cul show their rear e
frères Ripolin a popular brand of p
shows three painters writing on ea
blouse retroussée work uniform rol
s'acharnant à achever trying dogged
bacchanale clandestine a secret orgy
pour soi for oneself
clés de la cambuse keys to the storeroo
fatras d'objets hétéroclites hodgepodge
divers outils de labeur various workmen
Je m'accorde un moment de répit I give
m'accoude au hublot lean on my elbows a
amarrée moored
Le Calla The streetlamp (cast by Calla)
de mes débuts *in effect:* that I saw at first
brille déjà is still burning
32
J'ai maintenant mon compartiment réservé. Une fenêtre plein centre, et de part et d'autre un nombre important d'accessoires. Un cadre immense sans toile, des vérins d'échafaudage, trois caisses de belles dimensions ; de la seule entrouverte dépasse un manche de scie métallique. Il y a aussi une belle vitrine vide, montée sur un châssis de cornières, qui se retrouve ici en disgrâce. Je m'en approche.
l'intérieur ne restent que deux traces rondes, sûrement deux ocles… Un aquarium dont on aurait retiré l'eau mais où serait stée la silhouette des poissons. Les danseuses étoiles en tutu, c'est reil quand elles dansent : tu finis par suivre des yeux le vide elles dessinent autour d'elles…
ques tableaux tournés face au mur, dans un ordre croissant de eur, montrent leur cul. J'imagine les frères Ripolin, la blouse ssée, s'acharnant à achever une bacchanale clandestine. vagabonde quand on a pour soi les clés de la cambuse. À e la royale fenêtre, un fatras d'objets hétéroclites, divers labeur.
de un moment de répit, m'accoude au hublot. La Cour en amarrée vingt mètres plus bas. Le Calla de mes débuts . Une belle nuit à quai peut commencer.
33
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Laura K. Lawless, French guide
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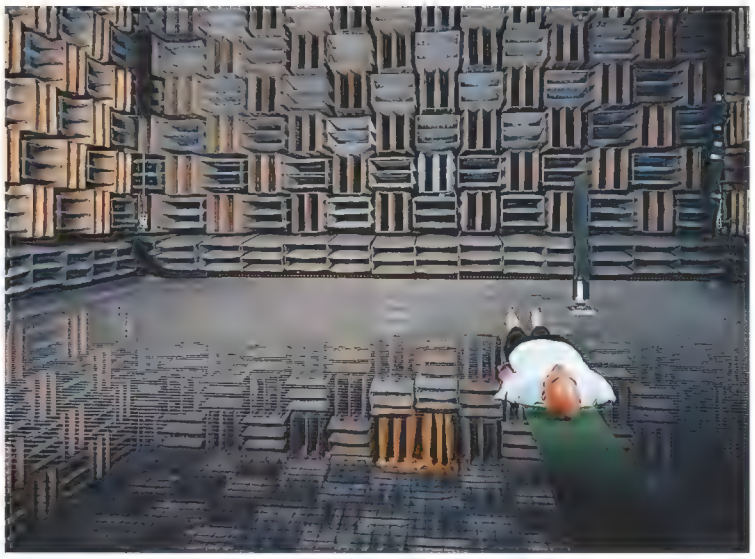
What's Up

BUT IS IT COMFORTABLE? Brazil's Campana brothers dreamed up a chair woven from 1,600 feet of rope (*Vermelha Chair*, 1993). The design duo are guest curators for a Cooper-Hewitt exhibit showcasing "fantasies of daily life" through September 28.

THE SIGHTS OF SILENCE

A man floats within a padded, soundproof chamber in Miranda Lichtenstein's photograph *Quiet Room* (2005). Ponder this and other newly acquired artwork at the Hirshhorn through October 1.

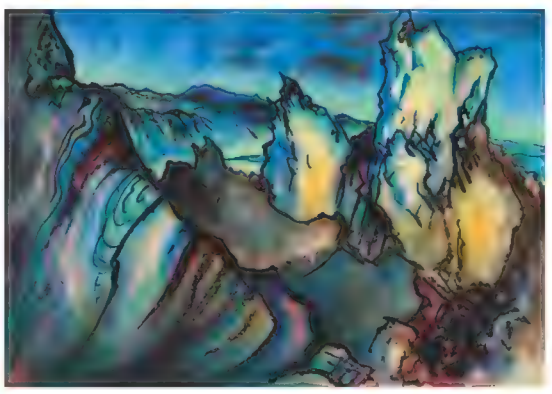


WEARABLE ART

At the Renwick, jewelry becomes modern art, like this gold and acrylic *Ring* (1970) by German sculptor Claus Bury. See 275 pieces of avant-garde jewelry from March 14 to July 6.

DREAMS OF FLYING

In the 1920s, African-American pilots began a long struggle to break racial barriers. Their stories are told in *Black Wings*, by Von Hardesty, new from Smithsonian Books.



INSPIRING SPIRES

Vivid California landscapes (*Mono Crater,* 1930) moved Japanese artist Chiura Obata. Experience "Obata's Yosemite" at the American Art Museum through June 1.

BY KENNETH R. FLETCHER

ANDREW GARN / COOPER-HEWITT MUSEUM, SI; HIRSHHORN MUSEUM, SI; SAAM; MUSEUM OF FINE ARTS, HOUSTON; SI BOOKS

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Understand the risks. See the benefits.™

What should I know about NSAIDs?

When it comes to relieving arthritis pain, you may think some prescription NSAID pain relievers, like ibuprofen and naproxen, don't have any cardiovascular risks. But based on the available research, that's not clear. And if you look closer, the FDA requires all these prescription NSAID pain relievers, including Celebrex, to have the same cardiovascular warning about heart attack or stroke.

What about heart attack or stroke?

Any prescription NSAID, including Celebrex, may increase the chance of heart attack or stroke, which can lead to death. This chance increases if you have heart disease or risk factors for it, such as high blood pressure, or when NSAIDs are taken for long periods.

How do NSAIDs affect my stomach?

All prescription NSAIDs, including Celebrex, also increase the chance of stomach and intestine problems, such as bleeding and ulcers, which can occur without warning and may cause death. With any of these medicines, patients also taking aspirin and the elderly are at increased risk for stomach bleeding and ulcers.

What does this mean for Celebrex?

All prescription NSAIDs have some of the same warnings, and they all help treat arthritis pain. But since individual results may vary, having options is important. An NSAID, like Celebrex, may be one option.

You also may be surprised to learn, prescription Celebrex has never been taken off the market. Actually, based on the available data, the FDA stated that for certain patients Celebrex's benefits outweigh the risks. But only you and your doctor can make that decision.

What are the benefits?

Celebrex can be used with low-dose aspirin. Other prescription NSAIDs aren't generally recommended with aspirin. What's more, just one 200-mg dose provides 24-hour relief. And if you are concerned about stomach upset, you should know, in clinical studies, a lower percentage of patients taking Celebrex reported stomach discomfort, which includes indigestion, abdominal pain and nausea, versus prescription ibuprofen and naproxen.

What does it do for arthritis pain?

Celebrex relieves arthritis pain. It also relieves stiffness and inflammation associated with arthritis pain.

Any other precautions?

All NSAIDs, including Celebrex, should be used at the lowest dose possible, for the shortest time, based on your individual treatment goals. Do not take Celebrex if you're pregnant or have had allergic reactions to aspirin or sulfonamides. All NSAIDs, including Celebrex, increase the chance of serious skin reactions. And tell your doctor if you've had kidney or liver problems.

What next?

For many with arthritis pain, not treating is not an option. Talk to your doctor about Celebrex and see what's right for you.

Visit celebrex.com or call 1-888-celebrex. But most importantly, your doctor can tell you about the risks and benefits of all NSAID pain relievers.

Please turn page to see important information about Celebrex and other NSAIDs.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch or call 1-800-FDA-1088.

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Medication Guide
for Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)

(See the end of this Medication Guide for a list of prescription NSAID medicines.)

What is the most important information I should know about medicines called Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)?

NSAID medicines may increase the chance of a heart attack or stroke that can lead to death.

This chance increases:

- with longer use of NSAID medicines
- in people who have heart disease

NSAID medicines should never be used right before or after a heart surgery called a "coronary artery bypass graft (CABG)."

NSAID medicines can cause ulcers and bleeding in the stomach and intestines at any time during treatment. Ulcers and bleeding:

- can happen without warning symptoms
- may cause death

The chance of a person getting an ulcer or bleeding increases with:

- taking medicines called "corticosteroids" and "anticoagulants"
- longer use
- smoking
- drinking alcohol
- older age
- having poor health

NSAID medicines should only be used:

- exactly as prescribed
- at the lowest dose possible for your treatment
- for the shortest time needed

What are Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)?

NSAID medicines are used to treat pain and redness, swelling, and heat (inflammation) from medical conditions such as:

- different types of arthritis
- menstrual cramps and other types of short-term pain

Who should not take a Non-Steroidal Anti-Inflammatory Drug (NSAID)?

Do not take an NSAID medicine:

- if you had an asthma attack, hives, or other allergic reaction with aspirin or any other NSAID medicine
- for pain right before or after heart bypass surgery

Tell your healthcare provider:

- about all of your medical conditions.
- about all of the medicines you take. NSAIDs and some other medicines can interact with each other and cause serious side effects. **Keep a list of your medicines to show to your healthcare provider and pharmacist.**
- if you are pregnant. **NSAID medicines should not be used by pregnant women late in their pregnancy.**
- if you are breastfeeding. **Talk to your doctor.**

What are the possible side effects of Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)?

Serious side effects include:	**Other side effects include:**
• heart attack • stroke • high blood pressure • heart failure from body swelling (fluid retention) • kidney problems including kidney failure • bleeding and ulcers in the stomach and intestine • low red blood cells (anemia) • life-threatening skin reactions • life-threatening allergic reactions • liver problems including liver failure • asthma attacks in people who have asthma	• stomach pain • constipation • diarrhea • gas • heartburn • nausea • vomiting • dizziness

Get emergency help right away if you have any of the following symptoms:

- shortness of breath or trouble breathing
- chest pain
- weakness in one part or side of your body
- slurred speech
- swelling of the face or throat

Stop your NSAID medicine and call your healthcare provider right away if you have any of the following symptoms:

- nausea
- more tired or weaker than usual
- itching
- your skin or eyes look yellow
- stomach pain
- flu-like symptoms
- vomit blood
- there is blood in your bowel movement or it is black and sticky like tar
- skin rash or blisters with fever
- unusual weight gain
- swelling of the arms and legs, hands and feet

These are not all the side effects with NSAID medicines. Talk to your healthcare provider or pharmacist for more information about NSAID medicines.

Other information about Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)

- Aspirin is an NSAID medicine but it does not increase the chance of a heart attack. Aspirin can cause bleeding in the brain, stomach, and intestines. Aspirin can also cause ulcers in the stomach and intestines.
- Some of these NSAID medicines are sold in lower doses without a prescription (over-the-counter). Talk to your healthcare provider before using over-the-counter NSAIDs for more than 10 days.

NSAID medicines that need a prescription

Generic Name	Tradename
Celecoxib	Celebrex
Diclofenac	Cataflam, Voltaren, Arthrotec (combined with misoprostol)
Diflunisal	Dolobid
Etodolac	Lodine, Lodine XL
Fenoprofen	Nalfon, Nalfon 200
Flurbiprofen	Ansaid
Ibuprofen	Motrin, Tab-Profen, Vicoprofen* (combined with hydrocodone), Combunox (combined with oxycodone)
Indomethacin	Indocin, Indocin SR, Indo-Lemmon, Indomethagan
Ketoprofen	Oruvail
Ketorolac	Toradol
Mefenamic Acid	Ponstel
Meloxicam	Mobic
Nabumetone	Relafen
Naproxen	Naprosyn, Anaprox, Anaprox DS, EC-Naproxyn, Naprelan, Naprapac (copackaged with lansoprazole)
Oxaprozin	Daypro
Piroxicam	Feldene
Sulindac	Clinoril
Tolmetin	Tolectin, Tolectin DS, Tolectin 600

*Vicoprofen contains the same dose of ibuprofen as over-the-counter (OTC) NSAIDs, and is usually used for less than 10 days to treat pain. The OTC NSAID label warns that long term continuous use may increase the risk of heart attack or stroke.

This Medication Guide has been approved by the U.S. Food and Drug Administration.

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INTERVIEW
DOUG FINE
JOURNALIST, NEW MEXICO

How an ambitious experiment in ecological living led to a goat pen **BY AMANDA BENSEN**

TWO YEARS AGO, PUBLIC RADIO REPORTER DOUG FINE bought a 41-acre ranch in southwestern New Mexico to live off the land—and off the grid. In his book *Farewell, My Subaru*, due out this month, he says he raised his own food, cut his dependence on fossil fuels and still managed not to "die in a way that would cause embarrassment if the obituary writer did his or her research."

HOW DID YOU COME UP WITH THIS IDEA? I wanted to see if I could reduce my oil and carbon footprint but still enjoy the amenities that we expect as Americans. In other words, to continue driving a motorized vehicle and have power at my house—not live like a total Grizzly Adams. Can I enjoy Netflix and the Internet without fossil fuels?

CAN THE AVERAGE WORKING PERSON LIVE OFF THE GRID? Yes. Anybody can live an almost totally oil-free lifestyle. If your vehicle has a diesel engine, you can convert it to run on waste vegetable oil from restaurants. That's what I did for my ROAT, my Ridiculously Oversized American Truck. Solar power is totally feasible. Growing your own food takes an hour or two a day. But I would suggest that if one doesn't have an hour or two to work on one's life, one might be too busy.

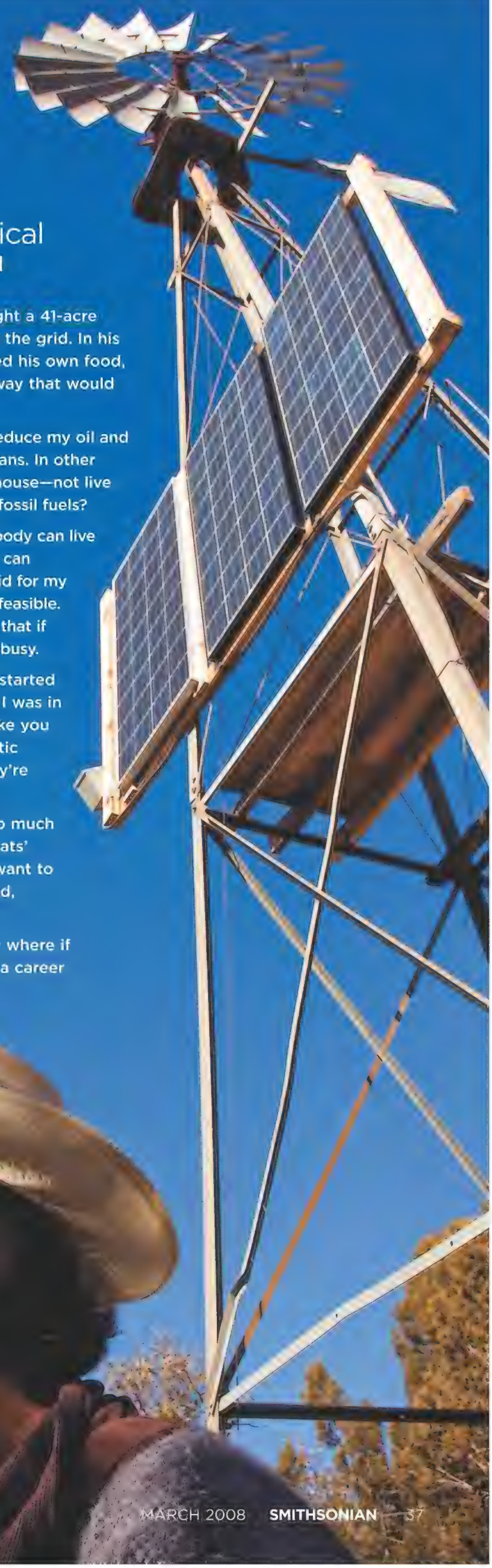
HOW ENVIRONMENTALLY CONSCIOUS WERE YOU GROWING UP? I started out in the suburbs of New York, where I didn't see a real tomato until I was in college. I thought tomatoes were supposed to be orange baseballs, like you see them in the supermarket. The way I live now is an absolutely drastic change. But when people visit me here at the Funky Butte Ranch, they're not saying, 'Wow, what a wacko.' They're saying, 'How can I do this?'

WHEN WAS THE LAST TIME THAT YOU WENT TO A WAL-MART? I go much less frequently than I used to, but the dilemma remains. Today, my goats' water bucket broke. It's a plastic bucket made in China. Eventually, I want to go to a thrift store and find an old ceramic or metal sink to use instead, but in the short-term, I need another bucket.

DO YOU SEE YOURSELF AS A HUMOR WRITER? It's to the point now where if I do something painful or dumb, I think—that's a career move. I make a career of doing things poorly and increasing people's confidence they can do those things, too. When I first experimented with solar power, I shocked myself so badly that I could practically see my own skeleton through my skin.

WHAT WAS HARDER THAN EXPECTED? The animal husbandry and some of the food-growing. When I hear coyotes howling, I go sleep in the pen to keep the baby goats company. I know that would be a hard transition for some folks.

YOU SLEEP IN THE GOAT PEN? If you're basically offering a buffet of goats and chickens, you need to defend against predators that want 24-hour takeout.



KAREN KUEHN

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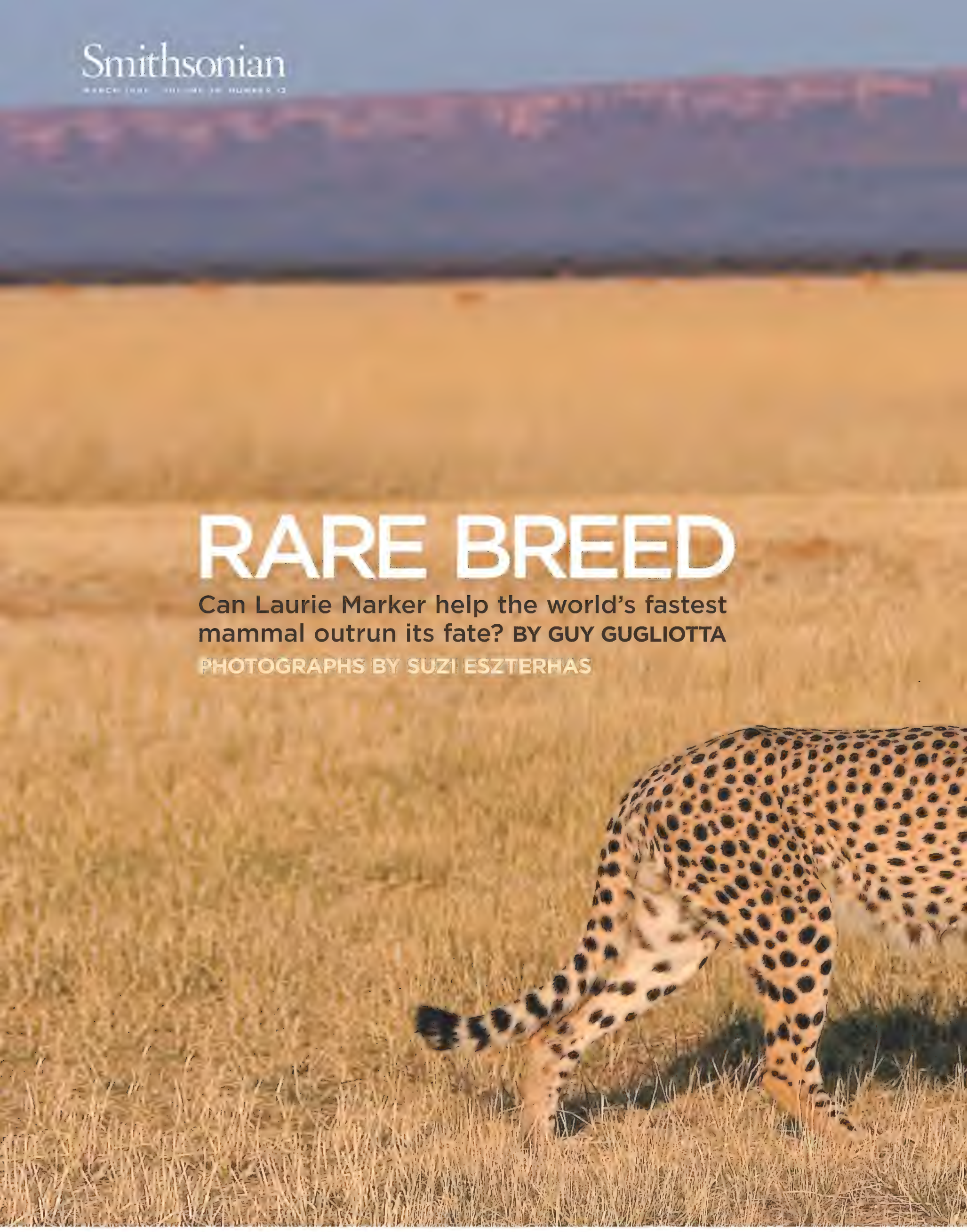
RARE BREED

Can Laurie Marker help the world's fastest mammal outrun its fate? BY GUY GUGLIOTTA

PHOTOGRAPHS BY SUZI ESZTERHAS



American Laurie Marker (with Chewbaaka, a cat she raised after it was caught in a trap as a 3-week-old) is the world's expert on cheetahs.

YOU CAN SEE WHY THE PHARAOHS of Egypt revered cheetahs, why they fascinated William the Conqueror and why Kublai Khan supposedly kept a thousand of them for hunting. Nothing in this world—absolutely nothing—moves like a cheetah. The sprint is their trademark—they run down kudu antelope on the African plain, zero to 70 in four seconds, 25 feet per stride, oversize heart going like a train, nostrils flared in the bullet skull. The kudus don't stand a chance.

Or watch them lope effortlessly alongside a truck going 25 miles an hour, waiting for gamekeepers to toss them five-pound chunks of giraffe meat. They glide soundlessly, unblinking amber eyes focused only on dinner. Listen as they chase a rag flicked like a fishing lure back and forth in the high grass. They pivot like dancers, ropy tails twirling for balance as the cat feet tremble the earth like jackhammers. Cheetahs weigh between 75 and 120 pounds, but their whippy torsos are nothing more than stripped-down chassis for fabulous legs. Nothing out-quicks a cheetah.

"We run them as much as we can," says Laurie Marker, striding back and forth, trailing the lure in the front yard of her ranch house about 30 miles east of Otjiwarongo, in northern Namibia, while Kanini, a 1-year-old orphan female, pounces and leaps in her wake. "They need the exercise."

Kanini, whose name means "Little One" in the Namibian language of Oshivambo, stops chasing the lure. She jogs regally back and forth between Marker and me, rubbing against our trousers and clamoring for attention, her purr gurgling like an idling Ferrari. Her beautiful coat feels like AstroTurf; it is an incongruity in what otherwise seems a perfect creature, but it is probably a blessing. Thanks to its rough texture, there is little market for cheetah fur.

Marker, striking at 54, probably knows more about cheetahs than anyone alive. She tracks them, tags them, knocks them out and samples their blood, checks their poop to see what they eat and provides guard dogs to Namibian farmers and ranchers to keep them away from livestock. She also takes her work home with her. When David Wildt, a biologist at the National Zoo in Washington, D.C., first met her 30 years ago, the only thing he knew about her was that she slept with a cheetah named Khayam curled next to her bed. "That really impressed me," he says.

Today Marker is executive director of the Cheetah Conservation Fund, a million-dollar-a-year nonprofit foundation she built from scratch that has become the template for a new, visionary approach to wildlife management. Without her, the fleet-footed predators of Africa's bush country would likely be closer to extinction. Even now they are not safe, for despite their elegant history and their acrobatic grace, they are flawed creatures. They have a low fertility rate, a high incidence of birth defects and weak immune systems. And by hunting them unmercifully for most of the past century, humans reduced their numbers from about 100,000 worldwide in 1900 to about 30,000 in the 1970s. That's when Marker stepped in.

LAURIE MARKER WAS RAISED in a suburb of Los Angeles, where her father, trained as an agricultural economist, worked in the aerospace industry and kept horses, rabbits and other

Cheetah mothers move their cubs to a new den almost every night for the first six weeks (right and far right: a mother with 6-day-old cubs in Kenya's Masai Mara game preserve), making the young hard to study.

Marker's love for cheetahs was sparked in an Oregon wildlife park (above: with Khayam in the mid 1980s). In 1991, she moved to Namibia to save cheetahs in the wild. (At right: students meet Chewbaaka at the Cheetah Conservation Fund.)

animals in the backyard. Marker went to San Francisco State University to study psychology, then transferred to Napa Valley College to learn winemaking. She left college in 1972 to start a vineyard with her husband and two other couples in Winston, Oregon. To help bankroll the venture, Marker, barely 20, worked at an animal park called Wildlife Safari.

The sum total of what was then known about cheetahs at Wildlife Safari was that they were fascinating, standoffish and virtually impossible to breed. The cheetahs had been isolated on a hilltop away from visitors in hopes they would mate. Captivated, Marker started to ask questions, read books and conduct research about the animals. "I plod," she says. "But I'm a finisher." (In 2002, at 48, she earned a PhD from Oxford University. Her dissertation, *Aspects of Cheetah [*Acinonyx jubatus*] Biology, Ecology and Conservation Strategies on Namibian Farmlands*, is considered the last word on cheetahs.)

But in the 1970s cheetahs were still a riddle. They were easily domesticated and long revered—King Tut's tomb was decorated with several cheetah statues, and rulers since ancient times had kept them as pets and used them as hunting companions. Yet history had recorded only one litter born in captivity—in the stables of the 16th-century Indian Mughal emperor Jahangir—before the birth of three cubs at the Philadelphia Zoo in 1956, all of which died within three months. The failure of captive breeding meant that cheetah fanciers had to replenish their supply with wild ones. "For thousands of years, we've been loving them to extinction," Marker says. Cheetahs once ranged across south Asia, the Middle East and Africa, but by the late 1970s, they were gone from Asia, except for a few in Iran, and were declining rapidly in Africa, where ranchers routinely shot them to keep them away from livestock. With the animals facing oblivion, scientists got busy.

Starting in 1980, researchers affiliated with the National Zoo began to examine the cheetah's reproductive characteristics and conduct the first-ever studies of cheetah DNA. The zoo sent a research team to South Africa to obtain semen and blood samples from about 80 cheetahs at a refuge. Wildt, then a reproductive biologist at the National Institutes of Health (NIH), was studying cat biology. He examined the semen under a microscope and found shockingly low sperm counts—about 10 percent of the norm for

Cheetahs are easily domesticated and long revered. "For thousands of years, we've been loving them to extinction," says Marker.

UPPER LEFT: ALAN BUCKINGHAM / THE NEWS-REVIEW

other felines. And there were huge numbers of malformed sperm—about 70 percent in each sample. This explained the animals' low fertility.

The blood samples went to Stephen O'Brien at NIH. He had studied the domestic cat as a model for human viral cancers and was interested in genetic variation. In most cat species, enzymes in the blood differ genetically between individuals by 20 percent to 50 percent. But the cheetahs' blood enzymes were all alike. "We found nothing," says O'Brien, no variation at all. After looking at 52 genes, O'Brien halted the study. The cheetahs were virtual clones.

Were they catastrophically inbred? To test that hypothesis, O'Brien and Wildt needed more samples. Zookeepers had made great strides in breeding cheetahs since the three cubs died in Philadelphia, but Wildlife Safari—with Mark-

MAP: MIKE REAGAN

GUY GUGLIOTTA *wrote about computerizing Old Bailey court records in the April 2007 issue of* SMITHSONIAN. *Wildlife photographer* **SUZI ESZTERHAS** *lives in San Rafael, California.*

er in charge of the cheetahs—had the most successful breeding operation in the country, with three dozen animals on hand. It would successfully raise more than 100 cheetah cubs during the 16 years Marker worked there.

In Oregon, Wildt and O'Brien took skin samples from eight Wildlife Safari cheetahs and grafted them onto other cheetahs. Ordinarily, as in human transplants, a host will reject a donor organ unless there is a close tissue match and an assist from immunosuppressant drugs. But the cheetah grafts were accepted in every case. This was disturbing news, for it meant that their immune systems were so similar that almost every cheetah in the world had the same vulnerability to the same diseases. In fact, in 1982, Wildlife Safari lost 60 percent of its cheetahs to an epidemic of viral peritonitis. "It went through the center like wildfire," Marker says. The same disease in any genetically diverse cat population could be expected to kill 2 percent to 5 percent of its victims.

Where had the cheetah gone wrong? By analyzing the few variations in cheetah DNA, O'Brien and Wildt determined that cheetahs had passed through a population "bottleneck" about 12,000 years ago. Some apocalyptic event had wiped out all but a few animals that then interbred, with disastrous consequences for the animal's gene pool. The obvious culprit was the onset of the last ice age, a cold snap that coincided with the extinction of saber-toothed cats, mastodons and other large prehistoric mammals. Fossil evidence shows that cheetahs evolved in North America about 8.5 million years ago and then spread throughout Asia, India, Europe and Africa; the modern species appeared about 200,000 years ago. The bottleneck wiped out all of North America's animals.

Cheetahs (below: chasing a Thomson's gazelle) evolved to run. Their claws grip the ground like cleats; their spines stretch and their hips and shoulders swivel to increase the legs' reach; their tails act as counterweights to let them turn without tumbling.

Wildt, O'Brien and Marker's National Zoo-led studies have informed everything that has happened in cheetah management and conservation since the 1980s. Researchers now know that the cheetah will not be a robust, vigorous species anytime in the foreseeable future and that saving the animals, Marker's proclaimed goal, thus requires a combination of strategies. Protecting and studying them in the wild is one approach, while at the same time scientists are refining techniques to breed them in captivity, hoping to build what Wildt calls an insurance policy for the wild population. The work continues today at the new Cheetah Science Facility in Front Royal, Virginia (see sidebar).

Marker, by then divorced, moved to Washington in 1988 to run the National Zoo's program to broaden genetic analysis in breeding cheetahs and other animals. She spent three years there before shedding her worldly goods and moving to Namibia. She sold what she could—including her mobile home in Oregon—gave away most of the rest and departed with $15,000.

"I thought if I told enough people about the threat to cheetahs, they would take care of it, but they never did," Marker says.

"[People] were always saying, 'somebody ought to do something about cheetahs,' but I could never find out who 'somebody' was. So *I* went."

MARKER ARRIVED IN NAMIBIA at a watershed moment. Colonized by Germany in the 19th century and annexed by apartheid South Africa after World War I, the country known as South West Africa became an international cause in the 1960s as the guerrilla South West Africa People's Organization (SWAPO) fought to end colonialism. In 1988, South Africa agreed to vacate Namibia, and the country gained independence in March 1990. Marker arrived April 1, 1991. "At first there was a lot of standoffishness, especially among the white folks," she recalls. "I was a U.S. citizen, and we had supported SWAPO, which, as far as they were concerned, was the wrong side."

With two million people living in an area nearly twice the size of California, Namibia is one of the least populated countries on earth; a motorist can drive 100 miles without seeing more than a half-dozen people. And the countryside teems with wildlife. Troops of jeering baboons greet motorists along the highway leading north from Windhoek, the capital. Families of wart hogs snuffle through the underbrush, and bushy-tailed jackals lurk in the grass. At water holes even a casual visitor can be confident of seeing a suite of marvelous creatures—eland, kudu, oryx, hartebeest. In all, Namibia boasts more than 20 species of antelope.

The cheetah is a top-of-the-line predator on the high plains. But, as Marker notes, cheetahs are one-trick cats. They can run down and kill anything their own size, or considerably bigger if they hunt together, but their legendary burst of speed—up to 70 miles per hour—is good for only about a quarter of a mile, and the chase leaves them badly winded and vulnerable. Bigger, nastier opportunists—lions, leopards and hyenas—frequently steal cheetah kills and, for good measure, then kill the exhausted cheetah's young.

BREEDING CHEETAHS

It's dinnertime and Tumai swoops into her den, bares her teeth, grabs a cow bone from a plastic dish and disappears with it into the tall grass behind her. Tumai is an 8-year-old female cheetah whose name in Swahili means "Hope." She and Zazi ("Fertile"), a 7-year-old female, moved into the National Zoo's new Cheetah Science Facility this past September.

"We thought they might be stressed by the new environment, but they took to it right away," says biologist Adrienne Crosier, who runs the nine-acre complex. It is part of the National Zoo's Conservation and Research Center, a 3,200-acre facility in the foothills of Virginia's Blue Ridge Mountains where some 30 species of rare or endangered animals—North America's black-footed ferret and Asia's red panda, Eld's deer and clouded leopard, among others—are studied and bred.

"What we have is space, and minimal public disturbances," says David Wildt, head of the zoo's Center for Species Survival and an authority on cheetahs. "The cheetahs are able to focus on why they're here."

They are here to breed. Within the captive cheetah population of 225 in the United States and Canada, the death rate has exceeded the birth rate during 10 of the past 12 years. The center's near-term goal is to make cheetahs self-sustaining in captivity. The long-term goal, says Wildt, is to "have it all"—to improve captive cheetahs' meager genetic diversity with sperm from wild cats and to use sperm from captive cheetahs to impregnate females in the wild.

Last year, Crosier went to Namibia and, with Laurie Marker, grew embryos in a lab; they hope to implant them into cheetahs within two to three years. By the end of this year, Crosier expects both Tumai and Zazi to give birth after artificial insemination via frozen sperm from two Namibian males. "There have been a lot of advances recently to improve the survivability of sperm after thaw," Crosier says. "At the same time, we have found that older females like Tumai can still produce good-quality eggs." In 2004, Tumai produced the first cheetah litter ever born at the National Zoo, and Zazi gave birth to five cubs the next year. Both litters were sired naturally.

National Zoo researchers (with Ume) are experimenting with cheetah fertility.

The new cheetah center can accommodate up to ten females, in individual enclosures, and four males, alone or in groups. The females' yards flank a central avenue known as "lover's lane," where males parade so that the females can choose their partners from among them.

Virtually all cheetahs in the United States are descended from South African animals, and their genes are probably even less diverse than those of wild cheetahs. Breeding cheetahs—whether via lover's lane or artificial insemination—is highly problematic, but the rewards, Crosier says, are priceless. "This is where you get to save a species. This is where you get to make babies." —G.G.

JESSIE COHEN / NZP, SI

For an interview with Adrienne Crosier, go to Smithsonian.com/cheetahs

Females define the cheetahs' unusual social order. Except when raising cubs, they are loners, and they select their mating partners. Males, meanwhile, form coalitions of siblings that hunt together and may remain together for life. In Namibia, males range over an area of about 860 square miles, while females travel farther—more than 1,500 square miles. Mothers have litters of up to six blind and helpless cubs. Perhaps to hide them from predators, cheetah mothers move their cubs to different dens every few days for the first six weeks of life (which makes tracking growing cubs difficult for researchers). Cheetah females reach maturity and leave the family when they are about 2 years old. No one knows for sure how long they survive in the wild; the animals live between 8 and 12 years in captivity.

In Namibia, 95 percent of cheetahs live on territory owned by ranchers. When Marker first got there, ranchers typically called cheetah "vermin" and killed about 600 every year. Marker's plan was simple. From the Windhoek airport, she traveled north in her Land Rover toward Otjiwarongo, "going door-to-door, talking to two farmers a day," she says, asking them how they managed their cattle herds, what they thought about the wildlife on their property and what problems they thought cheetahs were causing.

Marker shared her expertise as it grew. Cheetahs could not kill full-grown cattle, she explained, so ranchers might want to focus on protecting newborn calves. Cheetahs would rather eat wild game than risk an encounter with humans, she said, so instead of driving game away, ranchers should learn to live with it.

Her strategy emerged only gradually. "Here in Namibia we have wildlife, livestock and a unique ecosystem," Marker recalls telling the ranchers. "It is possible to make a living off every aspect of this, and you can have it all—if you have good livestock management. You can manage for predators, and you can make it work for profit."

By the time she had worked her way up to Harry Schneider-Waterberg's farm, she had filled notebooks with data. Schneider-Waterberg was in his mid-20s at the time, just starting to run the 104,000-acre farm that had been in his family for a century. "She told me that farmers with good management practices lost less livestock, and she had the facts to back it up," Schneider-Waterberg recalls. "I was young, just putting together my plan, and I thought if we can cut predator losses by doing these things, then I know where I'm going."

The best ranches, Marker told the ranchers, kept records for each animal, used herdsmen to spot cows ready to calve, then brought them into an enclosure until they did so. She explained that cheetahs won't come near donkeys, which can be extremely aggressive with other animals, including dogs, jackals and even leopards. She suggested using donkeys to guard cattle herds. "It was all information I could use," Schneider recalls, "never accusing." He now chairs the Waterberg Conservancy, a vast expanse of Namibian plains owned by 11 neighboring ranchers and the Cheetah Conservation Fund.

For the first few years, Marker camped in a succession of loaned farmhouses. In 1994, she bought the CCF property for $350,000 with grant money and a gift from a benefactor with ties to the Cincinnati Zoo. The property sprawls over 100,000 acres of savanna in the heart of cheetah country.

By that time, many of the ranchers had stopped killing cheetahs and were instead bringing those they had trapped to Marker, who took blood and semen samples from the animals, checked their age and health, and tagged and released them. Since 1991, Marker has done these work-ups on more than 800 cheetahs. She also established a sanctuary for motherless cubs; today it houses 46 orphans.

Marker's observations of cheetah behavior constitute most of what we know about them. She began fitting wild cheetahs with radio collars and following them with airplanes in 1992. She discovered that males, in groups, and females, which are solitary, roam over vast stretches of territory. Marker was the first to understand that females are the ones that select mates—a major reason why captive breeding had such a poor record: researchers had not known that it was ladies' choice, so giving single males a chance at several females—a standard breeding procedure—didn't work. She also learned that if two or more females occupy the same space, they may suppress each other's reproductive hormones. Today, breeders isolate females and let them choose mates from among the available males.

People said "'somebody ought to do something about cheetahs,' but I could never find out who 'somebody' was. So *I* went."

Marker also began integrated local education programs. There was not a lot of mixing between black and white students at first, Marker says, "but I polished up everybody's English. Soon the kids were all speaking American slang."

Anatolian shepherds (opposite: Marker with pups) deter cheetahs from taking livestock (above: a goatherd protects his flock in Namibia). Marker has found ways for people and cheetahs to live together peacefully.

Tribal leaders told her that the loss of even a single animal—cow, sheep or goat—to a maraud-ing cheetah could cause great hardship. "If people are hungry," Marker says, "they could care less about conservation." In 1990, to help the African shepherds and goatherds, Marker consulted evolutionary biologist Ray Coppinger of Hampshire College, in Amherst, Massachusetts, who recommended she use guard dogs instead of donkeys, which are aggressive toward sheep and goats. Marker chose the Anatolian shepherd, from Turkey, a black-faced, cream-colored short-haired breed that weighs up to 130 pounds. In 1994 Coppinger brought four Anatolian adults and four pups to Namibia and helped Marker set up a breeding program. Over the years she has given away 280 puppies to ranches and communes all over the country.

Today Marker, who gets donations from around the world, supervises 13 full-time professionals and 25 support staffers. At any one time she may have a dozen or more visiting researchers, veterinarians and students on-site. She has scientific or educational ties to universities all over the world. At local high schools, her helpers teach kids about farm surveys and radio tracking, biomedicine and genetics, publicity and fund-raising. Under the aegis of the conservation agency Earthwatch, volunteers can take working vacations at the Fund, doing everything from fence-building to cheetah-feeding. Marker has powerful friends. Sam Nujoma, independent Namibia's first president, is the Fund's formally designated "patron," and Marker is currently the chair of the Conservancy Association of Namibia, the umbrella organization of Namibia's conservation-minded landowners. She also maintains an international cheetah studbook.

Marker, whose second marriage ended in 1996, now lives with Bruce Brewer, a former curator at Chicago's Brookfield Zoo. He manages most of the day-to-day affairs at the Fund, which has grown to include dormitories, a mess hall, classrooms, research facilities and labs, a guest house and a gift shop. Marker makes fund-raising trips each year to the United States, has a satellite program in Kenya, assists cheetah conservation efforts in Algeria and Iran, trains farmers in Botswana and breeds dogs in South Africa.

Today the world cheetah population stands at about 12,500 animals in 26 countries. "We are at the lowest point in probably 9,000 years," Marker says. But she's shown that conservation can work. Namibia's share—the world's largest—stabilized a few years ago at 3,000 and is increasing slightly. This is Marker's doing. "Laurie's major contribution has been turning around the rapid loss" of cheetahs in Namibia, says David Wildt. "Her tactics and philosophy are being spread to other countries."

"Our approach is for the community to live with its wildlife," Marker says. "But you have to give them a reason." Many ranchers in Namibia's cheetah country now encourage tourists, researchers and other animal lovers to enjoy the wildlife. "Laurie saw the bigger picture," says rancher Schneider-Waterberg. "She was talking about how the whole world was going to know about the cheetahs. And it does."

Jones (sporting Frank Sinatra's ring) has a hand in the Beijing Olympics as well as ongoing music and movies.

The Arranger

BY LYNDON STAMBLER • PHOTOGRAPHS BY WILLIAM COUPON

He picked up a trumpet at age 13 and is still a musical force. From bebop to hip-hop, from Frank Sinatra to Michael Jackson, nobody alive has done more for American music than ***Quincy Jones****, who turns 75 this month*

His house stands atop a hill in the Bel Air section of Los Angeles, at the end of a gated, guarded driveway, nestled among citrus trees and bougainvillea and caressed by Pacific breezes. It's a grand stone structure, both a monument to Quincy Jones' success and a metaphor for his particular way of making things happen. The sprawling property—house, cabana, pool, tennis court, vine-draped grounds—was six years in the planning and building, and Jones helped arrange the disparate elements into a harmonious whole. He picked the earth-hued travertine, alabaster and limestone with Egypt's pyramids in mind. He modeled the central feature, a rotunda, after an African mud hut. The compound's layout accords with his reading

of the ancient Chinese principles of feng shui. And the place is filled with the gatherings of half a century as the music industry's most influential artist-entrepreneur. "The whole world is represented here, from Morocco to Nefertiti to the Tang dynasty," Jones says. "Global gumbo, that's where it's at."

Wearing a gray suit, gray Crocs with Mickey Mouse imprints and zebra-striped socks, Jones is giving a tour of the place, which also serves as a tour of his astonishing career. In the cabana is a display of 40 platinum records commemorating 40 million sales of Michael Jackson's *Thriller*, which Jones produced in 1982 and which has reached global sales of 104 million—the biggest-selling record ever. The walls of his screening room are lined with posters of the three dozen movies he has scored. A brief film Jones made about the construction of his house is accompanied by Ray Charles' 1959 hit "Let the Good Times Roll"—Jones arranged the song, and he and Charles were close friends since they were teenagers—and by Frank Sinatra's iconic "Fly Me to the Moon," which Jones arranged at the age of 31. Next to the piano in the rotunda is Jones' Oscar statuette, for the motion picture academy's 1995 Jean Hersholt Humanitarian Award. There are 27 Grammys—a total second only to that of the classical music conductor Sir Georg Solti—and an Emmy, for the score of the first episode of "Roots," the TV miniseries adaptation of Alex Haley's search for his African ancestors. "I keep on adding to it," Jones says of his house, though he might as well be speaking of his life in music. "I don't really want to finish it."

Jones turns 75 this month, and sports a hearing aid along with a gold hoop earring, but he's busy. He's producing an album and several movies. He's opening Q's Jook Joint, a club honoring the black musical tradition, in Las Vegas. He's a creative consultant for the Beijing Olympics opening ceremonies. And he still parties like a youngster. "He thinks he's 25," says daughter Rashida Jones, 32, an actress who has appeared on "The Office."

Still, three-quarters of a century is the sort of milestone that has journalists, historians and his fellow artists focusing on Jones' legacy. "His music threads its way throughout popular culture," says Sidney Poitier, a Jones pal for more than four decades. "You won't be able to speak of Ray Charles, Frank Sinatra and Michael Jackson or many other artists without some reference to Quincy."

"He has an extraordinarily deep sense of music," says the jazz critic Nat Hentoff. "He never loses the melody and he has the pulse of jazz, which is the pulse of life, in everything he does." That pulse courses through the lush strings caressing Sarah Vaughan's deep voice on her signature "Misty," the sax and xylophone interplay on Dinah Washington's "Makin' Whoopee" and the brass and sax notes dancing around Ella Fitzgerald's singing on "I'm Beginning to See the Light." Jones' work is so much a part of contemporary sound that there are plenty of tunes people know by heart without realizing that he created them, including the jaunty theme for the TV show "Sanford and Son" and the groovy "Soul Bossa Nova," recently revived by *Austin Pow-*

Jones (in New York City c. 1956) is "always brand-new," says producer Phil Ramone.

MICHAEL OCHS ARCHIVES / GETTY IMAGES

ers some 35 years after Jones wrote it, reportedly in 20 minutes.

"Quincy Jones was right up there with George Gershwin, Duke Ellington and Louis Armstrong as one of the cornerstones of American music," says Gerald Early, an English and African-American studies scholar at Washington University in St. Louis. "He's influenced American culture and had a presence that few other musicians have had."

Jones started out as a trumpet player, first performing at around age 14, but he would make his mark—and his fortune—as a composer and especially as an arranger and producer who made others shine. If Jones had simply made music, he would have had an amazing career. But he also became the first prominent African-American to break into Hollywood as a composer and the first black executive at a major record label, appointed a vice president at Mercury Records in 1962. He founded Qwest Records and coproduced the movie *The Color Purple* (casting Oprah Winfrey as Sofia) and TV's "The Fresh Prince of Bel-Air" (discovering ex-rapper Will Smith). In 1990, he started a charity, now known as the Quincy Jones Foundation, which has disbursed some $20 million for, among other things, anti-malaria measures in Africa and a project in which disadvantaged youths from South Los Angeles helped build houses in South Africa. He also has ties to the Smithsonian, serving on the council of the National Museum of African American History and Culture.

Clockwise from top: Jones (c. 1950) played trumpet for Lionel Hampton's band; produced "It's My Party" with Lesley Gore in 1963; got a Hollywood star in 1980, with his then wife, actress Peggy Lipton; re-teamed with Sinatra, c. 1966; worked with Duke Ellington in the '70s; and was mentored by Count Basie.

Henry Louis Gates Jr., the Harvard historian, compares Jones to such great American innovators as Henry Ford, Thomas Edison and Bill Gates. "We're talking about the people who define an era in the broadest possible way," Gates says. "Quincy has a lifeline into the collective consciousness of the American public. . . . It's one thing to find a person who is a brilliant creator and composer. It's another to find a person who is just as brilliant as an entrepreneur. That's unprecedented in the history of jazz and the history of black music."

Quincy Delight Jones Jr. was born in Chicago on March 14, 1933, the son of Quincy Delight Jones Sr., who worked as a carpenter for the Jones Boys, gangsters who ran the rackets and a five-and-dime chain, and Sara Wells Jones, who spoke several languages and managed apartments.

Music was everywhere. There was a neighbor named Lucy who played stride piano, and young Quincy heard the risqué boogie-woogie number "The Dirty Dozens" on his maternal grandmother's Victrola. But there was chaos, too. Quincy Jr. once saw a corpse hanging from a telephone pole with an ice pick in its neck. He has a scar on his right hand where he was stabbed. For a time he would carry a .32 snub-nosed pistol.

And then there was his mother, who apparently suffered from schizophrenia. On Quincy's fifth birthday, she tossed his coconut cake out the back porch of their home. When he was around 7, his mother broke a window and sang out, "Oh, somebody touched me and it must have been the hand of the Lord." Recalling the incident, Jones speaks very softly. "They laid her down upstairs in a straitjacket." She was committed to a state hospital. Quincy Sr. took his sons to visit her. She didn't return home to stay. "I never felt like I had a mother," Jones says. "I used to sit in the closet and say, 'If I don't have a mother, I don't need one. I'm going to make music and creativity my mother.' It never let me down. Never." His mother, who was later released from the hospital, would reappear in her son's life at awkward times. "There was never any resolution," he wrote in *Q: The Autobiography of Quincy Jones*. She died in 1999 at age 95.

In 1943, his father became involved with another woman and moved their families (which grew to eight children) to Bremerton, Washington, where Quincy Sr.

FRANK DRIGGS COLLECTION; QUINCY JONES ARCHIVES; FRANK DRIGGS COLLECTION; BETTMANN / CORBIS; QUINCY JONES ARCHIVES (2)

worked in the Navy shipyards for $55 a week. "Every day my daddy told me the same thing," Jones recalls: "Once a task is just begun, never leave it till it's done. Be the labor great or small, do it well or not at all." Quincy Jones Sr. died in 1971 at age 75.

Finding his way in the mostly white Northwest was not easy. There were no Oprahs or Michael Jordans, and Jones knew that even the black characters on the radio, like Amos and Andy, were played by whites. "I made the Lone Ranger and the Shadow black," he says.

At 11, he and some friends broke into a recreation room near a local Army base to eat lemon meringue pies. Wandering around, Jones saw a spinet piano. "I touched that piano and every cell in my body said this is what you will do for the rest of your life," he says.

He would revisit that piano to learn songs he'd heard his neighbor Lucy play. He began composing music before he knew what a key signature was. When he heard a local barber playing the trumpet, he was hooked, but he tried everything from violin to the sousaphone before he finally got his hands on one.

Living in Seattle after the war, Jones began sneaking into local clubs to watch Count Basie, Lionel Hampton, Cab Calloway and Woody Herman. The jazzmen were worldly and intelligent. "This is the family I wanted to be in the rest of my life," Jones says.

"If he was looking for a castle on a hill, he now has it," Sidney Poitier says of Jones' Los Angeles mansion, a showcase for his global gumbo.

Basie took him under his wing at age 13. Quincy approached one of the bandleader's trumpeters, Clark Terry, for lessons, somehow persuading the veteran, who played the clubs until 4 a.m., to meet him

at 6 a.m. "He had a way about him of showing sincerity and real deep interest," says Terry, now 87. "Everybody admired the way he tackled life." Terry agreed to show Quincy's first composition to Basie's band, and he protected the youngster from the pros' withering criticism. "I shudder to think how that could have thwarted his attempts to become a successful musician," he says.

During those years, Quincy formed a bond with another Seattle music wunderkind. Ray Charles was 16 and Quincy 14 when they met. "He was like a hundred years older than me," Jones says, recalling something vital Charles said: "Every music has its own soul, Quincy." Jones would go on to arrange some of his friend's notable recordings, including two numbers on *The Genius of Ray Charles* in 1959 and the follow-up album, teaming Charles with Basie's band, *Genius + Soul = Jazz*.

In a band headed by Bumps Blackwell, Jones played R & B, and with Charles he played every kind of music: pop at the tennis club for white audiences, R & B and bebop at the black clubs until dawn. When Billie Holiday came to town in 1948, the band backed her. "They had to shove her on the stage, she was so out of it," Jones recalls.

Lionel Hampton even put Jones on his tour bus at 15. Jones was ready, but Hampton's wife, Gladys, told him to go back to school. Three years later (after briefly attending Boston's Schillinger House music school) Quincy made Hampton's band for real, sitting between the great trumpeters Clifford Brown and Art Farmer. There Jones began arranging music, setting the style and tempo and selecting the instruments. He could order his musical world. "After a while all I could think about were four trumpets, four trombones, five saxes and a drum, a bass, guitar and a piano," he says today. Over time, Hentoff says, Jones' arrangements have been "models of clarity and the use of space."

One quality that helps explain Jones' extraordinary longevity is ceaseless innovation. "With Q it's always brand-new, it's fresh," says the recording engineer and producer Phil Ramone, who has worked with Jones, Bob Dylan, Billy Joel and others. Another is the unusual combination of intensity and charm with

Quincy Jr. (below) coped with the absence of his mother, Sara Jones (left), by devoting himself to music. His father, Quincy Sr. (bottom left: c. 1969 with Quincy and Quincy Jones III), was a carpenter.

QUINCY JONES ARCHIVES (3)

which Jones has brought out the best from a wide range of idiosyncratic performers. "About 90 percent of what goes on with Quincy is passion," says Ramone. "It's about his personality, and then he has the chops to back it up."

As a producer, Jones is known to research every nuance, hire the best players and set them free. "He creates this marvelous circus," says Patti Austin, whose 1982 No. 1 hit, "Baby, Come to Me," Jones produced. "There are about two hours of laughing hysterically and telling stories and about 15 minutes of making music . . . but the music comes from a place of complete happiness."

In the 1950s, Jones spent much of his time between tours in New York City, playing, arranging and composing. Offstage, he cut quite a figure, hanging out with Marlon Brando, Tito Puente and Poitier, who first saw him near the Birdland jazz club. "He was one of the most handsome guys you could lay eyes on," Poitier says. "He was laughing and smiling all the time. He was a positive presence, especially to the ladies." It wasn't just the music he loved. "Let's be real," Jones recalls. "All guys get into music because they love music and they also want to get

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LYNDON STAMBLER *is the co-author, with his father, Irwin Stambler, of* Folk & Blues: The Encyclopedia. *Portrait photographer* **WILLIAM COUPON** *is based in New York City.*

the girls." Jones, currently single, has been married three times and has seven children, ages 15 to 54.

When he was getting ready to take his first trip to Europe with Hampton, in 1953, the veteran sax player Ben Webster sat him down. "Eat the food, listen to the music and learn 30 to 40 words in every language," Webster said. Jones listened: "It's like a code to enter another culture. If you open up your mind, it's like music."

His travels gave him fresh perspectives. In South America as the musical director and a trumpeter for Dizzy Gillespie's State Department tour in 1956, he fell for Latin rhythms, leading to his album *Big Band Bossa Nova*. In Paris he studied with the renowned composition teacher Nadia Boulanger, who had taught Aaron Copland and Philip Glass. "The more boundaries you set," she told him, "the more freedom you have."

"I didn't want to hear that, man, but she's right," Jones says.

In 1959, Jones assembled a band for a tour of Europe to play songs from the Harold Arlen and Johnny Mercer musical *Free and Easy*. The tour ended abruptly because of violence in Paris sparked by the Algerian conflict, but rather than return to the States, Jones kept the band together for ten months playing gigs in Europe and amassed a $145,000 debt. It took seven years to pay off.

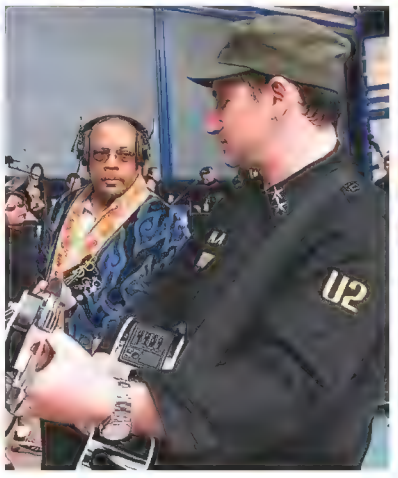
It was at Mercury Records that he first struck gold, when he was presented with a demo tape of a clear-voiced 16-year-old girl named Lesley Gore. He hated her name, but they recorded "It's My Party" in 1963. Jones then ran into producer Phil Spector, who said he had just recorded the same song with the Crystals. Jones rushed Gore's version out to radio stations before heading to Japan to score and act in a TV drama.

He got a call from Irving Green, Mercury's president. "You still don't like Lesley's name?"

"I think we could find something better," Jones said.

"Well, guess what, it's number one. Bring your ass home and do an album."

"It's My Party" was the first of Gore's 17 hits. "The minute I met Quincy I knew the man was destined for absolutely astronomical things," says Gore, who lives in Manhattan and still performs. "He took a 16-year-old kid and got a performance out of me. You don't do that without knowing people well and having a real sense of what you want to hear."



Clockwise from top: Jones rehearses a 1993 TV special with Sidney Poitier and Whoopi Goldberg; hangs with rappers Ice-T and Sean Combs at a 1995 MTV event; gets a Grammy with Michael Jackson in 1984; kisses his daughter Rashida Jones; tunes into Bono at the NetAid benefit in 1999; celebrates Ray Charles' 70th birthday in 2000.

While other African-Americans had little success breaking into film scoring, Jones wrote a well-received, jazzy score for his first film, Sidney Lumet's *The Pawnbroker* (1964). Before Jones got his next assignment, to score the film *Mirage* (starring Gregory Peck and Walter Matthau), a producer asked the composer Henry Mancini if Jones could handle it, adding, "This is not a black film."

Jones remembers what Mancini said: "'This is the 20th century. You think the guy's gonna write the blues for Greg Peck? Hire him!'" They did.

It was Sinatra who gave Jones his nickname—Q—while Jones was conducting the singer and a 55-piece orchestra at an event for Princess Grace at the Sporting Club in Monaco in 1958. Jones later arranged the music for Sinatra's 1964 album with Count Basie, *It Might as Well Be Swing*, which included "Fly Me to the Moon." Jones and Sinatra remained close until Sinatra's death in 1998. "He took me to another planet," Jones recalls, flashing the gold pinkie ring Sinatra left him. "He either loved you, or he'd roll over you in a Mack truck in reverse. There was nothing in between."

Following two aneurysm surgeries in 1974 that left Jones unable to play the trumpet, he composed music for the first episode of "Roots." Jones says he cried over the diagrams of slave ships that Alex Haley sent to him, and he became entranced with African music, including "Many Rains Ago (Oluwa)," a beautiful Nigerian folk song. "It's a

LYNN GOLDSMITH / CORBIS; TROY AUGUSTO / NEWSMAKERS / GETTY IMAGES; JOHNNY NUNEZ / WIREIMAGE / GETTY IMAGES; KMAZUR / WIREIMAGE / GETTY IMAGES; BARRY KING / WIREIMAGE / GETTY IMAGES; DONATO SARDELLA / WIREIMAGE / GETTY IMAGES

Jones (at home beneath platinum albums for *Thriller*) works at night, "when the muses come down and speak to me. Music is so powerful."

life force," he says, "so powerful." Haley helped Jones trace his own ancestry: two-thirds African (from Cameroon) and one-third French, Cherokee and Welsh, Jones says. George Washington was an ancestor, but Jones identifies with his African heritage. "Does this look Welsh?" he says, pointing to his skin.

Jones was already well known when Michael Jackson asked him to produce an album. They would do three—*Off the Wall* (1979), *Thriller* (1982) and *Bad* (1987)—a collaboration that would change pop music forever. Before making *Off the Wall*, Jones went to discos to learn the latest beats by watching people dance. The record has sold more than ten million copies. But it was the pulsating *Thriller,* with the songs "Billie Jean," "Beat It" and the title track, that reached every demographic, transformed Jackson into the king of pop and brought black music to MTV. "Michael and MTV rode each other to glory," Jones says. "I still hear those songs everywhere I go."

Gates, the historian, notices a big difference in Jackson before and after Jones. "With Quincy, Jackson makes the best-selling album in history. Without him, he's floundering. Every time I think of *Thriller* or *Bad*, I just hear Quincy there."

Right before Duke Ellington died in 1974, he inscribed a photograph for Jones: "To Q, who will de-categorize American music." Jones feels he met that challenge when he made *Back on the Block*, his 1990 multi-Grammy-winning album. For it, Jones brought together Ella Fitzgerald, Dizzy Gillespie, Ray Charles and Sarah Vaughan (her last session) and rappers such as Ice-T and Melle Mel to create a blend of zulu, gospel, jazz, rap and swing—global gumbo. Jones may be one of the few 75-year-olds who follow rap.

At the moment, the project on his mind is this summer's Olympics in Beijing, joining the movie directors Steven Spielberg and Ang Lee as artistic consultants. Jones is confident he can handle it. After all, he produced the 1996 Academy Awards show, the concert for Bill Clinton's first inauguration and America's millennium show in Washington, D.C. "I just like to mess with big stuff," he says.

"His will is so strong that nothing seems out of reach for him," says his daughter Rashida.

As a night mist envelops his compound, Jones is waiting for his next-door neighbor and former paramour, actress Nastassja Kinski, to stop by with their 15-year-old daughter, Kenya. With two titanium knees and his doctors at Sweden's Karolinska Institute telling him to lose 30 pounds, he has his aches and pains. Still, he says, "I'm having the best time in my life in every way."

And what's the legacy that one of America's most significant musical artists wants to leave? "To be a good father," Jones says, "which I'm learning more about every day."

Visit Smithsonian.com/jones for more on Quincy Jones

REVOLUTIO

ON THE WARPATH
Where thousands of soldiers ferried supplies toward the front (inset), a new road swings through Quang Tri Province.

ONARY ROAD

Efforts to turn the Vietnam War's notorious Ho Chi Minh Trail into a major highway have uncovered battle scars from the past while paving a way to a brighter future

BY DAVID LAMB • PHOTOGRAPHS BY MARK LEONG

THE OLD HO CHI MINH TRAIL passes right by Bui Thi Duyen's doorstep in the hamlet of Doi. The hamlet, quiet and isolated, is of no consequence today, but during what the Vietnamese call the "American War," many thousands of northern soldiers knew Doi, 50 miles south of Hanoi, as an overnight stop on their perilous journey to the southern battlefields. The camouflaged network of footpaths and roads they traveled was the world's most dangerous route. One North Vietnamese soldier counted 24 ways you could die on it: malaria and dysentery could ravage you; U.S. aerial bombardments could disintegrate you; tigers could eat you; snakes could poison you; floods and landslides could wash you away. Sheer exhaustion took its toll as well.

When the war ended in 1975, much of the Ho Chi Minh Trail was abandoned. The jungle pushed in to reclaim the supply depots, rickety bridges and earthen bunkers that stretched more than a thousand miles from a gorge known as Heaven's Gate outside Hanoi to the approaches of Saigon. Hamlets like Doi were left to languish, so remote they weren't even on maps. That North Vietnam had been able to build the trail—and keep it open in the face of relentless American attacks—was considered one of the great feats of warfare. It was like Hannibal crossing the Alps or General Washington the Delaware—an impossibility that became possible and thus changed the course of history.

DAVID LAMB, *a writer based in Virginia, is the author of* Vietnam, Now: A Reporter Returns. **MARK LEONG**, *an American photographer living in Beijing, has covered Asia since 1989.*

I met Duyen when I returned to Vietnam last May to see what was left of the trail that bore the name of the country's revolutionary leader. She was sitting under a blue tarpaulin, trying to fan away the breathless heat and hoping to sell a few sweet potatoes and half a dozen heads of lettuce spread out on a makeshift bench. At 74, her memory of the war remained crystal clear. "There was not a day without famine then," she said. "We had to farm at night because of the bombing. Then we'd go up in the mountains and eat tree roots." What food the villagers had—even their prized piglets—they gave to the soldiers who trekked through Doi, pushing bicycles laden with ammunition or stooped under the weight of rice, salt, medicine and weapons. She called them the "Hanoi men," but in reality

TRAILBLAZER
Le Minh Khue once filled bomb craters but now avoids motor scooters on Hanoi streets (above) as "too dangerous."

many were no more than boys.

These days, though, Duyen has things other than the war on her mind. With Vietnam's economy booming, she wonders if she should cut her ties with tradition and swap the family's 7-year-old water buffalo for a new Chinese-made motor scooter. It would be an even trade; both are worth about $500. She also wonders what impact Vietnam's most ambitious postwar public works project will have on Doi. "Without that road, we have no future," she says.

The project, started in 2000 and scheduled to take 20 years to complete, is turning much of the old trail into the Ho Chi Minh Highway, a paved multilane artery that will eventually run 1,980 miles from the Chinese border to the tip of the Mekong Delta. The transformation of trail to highway struck me as an apt metaphor for Vietnam's own journey from war to peace, especially since many of the young workers building the new road are the sons and daughters of soldiers who fought, and often died, on the Ho Chi Minh Trail.

The old infiltration and supply route—which the Vietnamese call Truong Son Road, after the nearby mountain range—wasn't a single trail at all. It was a maze of 12,000 miles of trails, roads and bypasses that threaded through eastern Laos and northeastern Cambodia and crisscrossed Vietnam. Between 1959 and 1975 an estimated two million

ALL PHOTOS: MARK LEONG / REDUX; PP. 56-57 (INSET) COURTESY OF TRONG THANH ESTATE

soldiers and laborers from the Communist North traversed it, intent on fulfilling Ho Chi Minh's dream to defeat South Vietnam's U.S.-backed government and reunite Vietnam. Before leaving Hanoi and other northern cities, some soldiers got tattoos that proclaimed: "Born in the North to die in the South."

During the war, which I covered for United Press International in the late 1960s, the Ho Chi Minh Trail had an aura of foreboding mystery. I could not imagine what it looked like or who trekked down it. I assumed I would never know. Then in 1997, I moved to Hanoi—the "enemy capital," I used to call it in my wartime dispatches—as a correspondent for the *Los Angeles Times*. Almost every male I met over 50 had been on the trail, and during my four years in Hanoi and on subsequent trips to Vietnam, I filled several notebooks with their stories. They invited me into their homes, eager to talk, and not once was I received with anything but friendship. I came to realize that the Vietnamese had put the war behind them, even as many Americans still struggled with its legacy.

Trong Thanh was one of those who greeted me—at the door of his home, tucked deep in a Hanoi alleyway, with a cup of green tea in hand. One of North Vietnam's most celebrated photographers, he had spent four years documenting life on the Ho Chi Minh Trail and had toured the United States with his pictures in 1991. The images spoke of the emotions of war more than the chaos of combat: a North Vietnamese soldier sharing his canteen with a wounded enemy from the South; a moment of tenderness between a teenage soldier and a nurse who looked no older than 15; three adolescent privates with faint smiles and arms over one another's shoulders, heading off on a mission from which they knew they would not return. "After taking their picture, I had to turn away and weep," Thanh said.

Thanh, whom I interviewed in 2000, six months before his death, pulled out boxes of photos, and soon the pictures were spread across the floor and over the furniture. The faces of the youthful soldiers stayed with me for a long time—their clear, steady eyes, the unblemished complexions and cheeks without whiskers, the expressions reflecting fear and determination. Their destiny was to walk down the Ho Chi Minh Trail. It would be left to their children to be the first generation in more than a hundred years not to know the sounds of battle or the bondage of foreign domination.

"It used to take two or three months for a letter from your family to reach you on the front," Thanh said. "But those were our happiest times on Truong Son, when we got mail from home. We'd read the letters aloud to

MAP: GUILBERT GATES

THE LONG ROAD SOUTH
The new highway will eventually run down Vietnam's spine, linking already completed sections (below) with luxury hotels in Dong Ha (below right: plans).

each other. Pretty soon one soldier would laugh over something in a letter, then everyone would laugh. Then you'd feel so guilty for being happy, you'd cry, and the whole forest would echo with falling tears."

STORM CLOUDS were rolling in from Laos the morning last May that I left Hanoi with a driver and an interpreter, bound for the former demilitarized zone that once separated North and South Vietnam at the 17th parallel. The bustling capital gave way to rice paddies and fields of corn. An elegantly dressed young woman went by, a live pig strapped to her motor scooter's rear rack. A small red flag of Communist Vietnam fluttered from her handlebar—its five-pointed star representing workers, farmers, soldiers, intellectuals and traders.

"Where's the road south?" my driver shouted to a farmer as we passed through Hoa Lac, 45 minutes southwest of Hanoi. "You're on it," came the reply. So this was it: the start of the new Ho Chi Minh Highway and below it, now covered by pavement, the legendary trail still celebrated in karaoke bars with songs of separation and hardship. No historical plaque marked the spot. There was only a blue-lettered sign: "Ensuring public safety makes everyone happy."

The new highway, which will not stray into Laos or Cambodia as the old trail did, will open up Vietnam's remote western interior to development. Environmentalists fear this will threaten wildlife and flora in national preserves and give access to illegal loggers and poachers. Anthropologists worry about its effect on the minority mountain tribes, some of whom fought on the side of South Vietnam and the United States. Health experts say truck stops along the route could attract prostitutes and spread AIDS, which took the lives of 13,000 Vietnamese in 2005, the last year for which figures are available. And some economists believe the $2.6 billion for the project would be better spent upgrading Route 1, the country's other north-south highway, which runs down the eastern seaboard, or on building schools and hospitals.

EMOTIONS OF WAR
The late photographer Trong Thanh spent four years documenting trail life. After taking a picture of three doomed soldiers (top), he "had to turn away and weep."

But government planners insist the highway will be an economic boon and attract large numbers of tourists. "We cut through the Truong Son jungles for national salvation. Now we cut through the Truong Son jungles for national industrialization and modernization," former Prime Minister Vo Van Kiet remarked, as construction began in April 2000. Most of the 865-mile stretch from Hanoi to Kon Tum in the Central Highlands has been completed. Traffic is light, and hotels, gas stations or rest stops are few.

"It may sound strange, but although it was a terrible time, my four years on Truong Son was a very beautiful pe-

ABOVE: COURTESY OF TRONG THANH ESTATE; TRONG THANH / VIETNAM PICTORIAL / AP IMAGES

riod in my life," said Le Minh Khue, who defied her parents and at age 15 joined a youth volunteer brigade on the trail, filling bomb craters, digging bunkers, burying corpses and ending each day covered head to toe with so much mud and dirt that the girls called each other "black demons."

Khue, a writer whose short stories about the war have been translated into four languages, went on: "There was great love between us. It was a fast, passionate love, carefree and selfless, but without that kind of love, people could not survive. They [the soldiers] all looked so handsome and brave. We lived together in fire and smoke, slept in bunkers and caves. Yet we shared so much and believed so deeply in our cause that in my heart I felt completely happy.

"I'll tell you how it was," she continued. "One day I went out with my unit to collect rice. We came upon a mother and two children with no food. They were very hungry. We offered to give her some of our rice, and she refused. 'That rice,' she said, 'is for my husband who is on the battlefield.' That attitude was everywhere. But it's not there anymore. Today people care about themselves, not each other."

The road was born May 19, 1959—Ho Chi Minh's 69th birthday—when Hanoi's Communist leadership decided, in violation of the Geneva Accords that divided Vietnam in 1954, to conduct an insurgency against the South. Col. Vo Bam, a logistics specialist who had fought against the French colonial army in the 1950s, was given command of a new engineer unit, regiment 559. Its 500 troops adopted the motto, "Blood may flow, but the road will not stop." The trail they started building was so secret that their commanders told them to avoid clashes with the enemy, "to cook without smoke, and speak without making noise." When they had to cross a dirt road near a village, they would lay a canvas over it so as to leave no footprints.

Before long there were thousands of soldiers and laborers on the trail, hidden under triple-canopy jungle and camouflage nets. They built trellises for plants to grow over, scaled cliffs with bamboo ladders, set up depots to store rice and ammunition. Villagers donated doors and wooden beds to reinforce the crude road that slowly pushed south. Porters stuffed bicycle tires with rags because their cargo was so great—up to 300 pounds. There were makeshift hospitals and rest stops with hammocks.

The United States began sustained bombing of the Ho Chi Minh Trail in 1965. B-52 bombers dropped loads of 750-pound bombs in 30 seconds to cut a swath through the forests the length of 12 football fields. The monster Daisy Cutter bomb could carve out a crater 300 feet in diameter. That same year, a young doctor, Pham Quang Huy, kissed his wife of two months goodbye in Dong Hoi and headed down the trail. He carried the traditional farewell gift that wartime brides and girlfriends gave their departing soldiers—a white handkerchief with his wife's initials embroidered in one corner. So many young men never returned that handkerchiefs became a symbol of grieving and parting throughout Vietnam. Huy did not see his home again—

or even leave the trail—for ten years. His daily ration was one bowl of rice and one cigarette. In all the time he was away, he and his wife were able to exchange only seven or eight letters.

"The soldiers became my family," Huy, 74 and retired from his civilian medical practice, told me. "The most terrible time for us was the B-52 carpet-bombing. And the artillery shelling from the coast. It was like being in a volcano. We'd bury the dead and draw a map of the grave site, so their families could find it. Our equipment was very simple. We had morphine but had to be very economical in its use. Soldiers begged me to cut off an arm or leg, thinking that would end their pain. I'd tell them, 'You should try to forget the pain. You must recover to finish your job. Make Uncle Ho proud of you.' "

TRYING TO STOP the infiltration of men and supplies into South Vietnam, the United States bombed the Ho Chi Minh Trail for eight years, setting forests ablaze, triggering landslides, denuding jungles with chemicals and building Special Forces outposts along the Laotian border. The Americans seeded clouds to induce rain and floods, launched laser-guided bombs to create choke points and trap truck convoys, and parachuted sensors that burrowed into the ground like bamboo sprouts, relaying data on movement back to the U.S. surveillance base at Nakhon Phanom in Thailand for evaluation. But work never stopped, and year after year infiltration into the South increased, from 1,800 soldiers in 1959 to 12,000 in 1964 to over 80,000 in 1968.

TRANQUILLITY REIGNS
A sleepy rest stop could awaken when the Ho Chi Minh Highway reaches Doi. "Without that road," says Bui Thi Duyen (above), "we have no future."

After each aerial attack, hordes of soldiers and volunteers scurried to repair the damage, filling craters, creating bypasses and deliberately building crude bridges just beneath the surface of river water to avoid aerial detection. By 1975, truck convoys could make the trip from the North to the southern battlefields in a week—a journey that had once taken soldiers and porters six months on foot. Antiaircraft artillery sites lined the road; a fuel line paralleled it. The trail made the difference between war and peace, victory and defeat, but it took a terrible toll. Upward of 30,000 North Vietnamese are believed to have perished on it. Military historian Peter Macdonald figured that for every soldier the United

States killed on the trail, it dropped, on average, 300 bombs (costing a total of $140,000).

AS MY INTERPRETER AND I headed south along the new highway, there was nothing beyond tidy, manicured military cemeteries to remind us that a war had ever been fought here. Forests have grown back, villages have been rebuilt, downed fighter bombers have long since been stripped and sold for scrap metal by scavengers. The mostly deserted two-lane highway swept through the mountains north of Khe Sanh in a series of switchbacks. In the distance flames leapt from ridge to ridge, as they had after B-52 strikes. But now the fires are caused by illegal slash-and-burn logging. Occasionally young men on shiny new motor scooters raced past us. Few wore helmets. Later I read in the *Vietnam News* that 12,000 Vietnamese were killed in traffic accidents in 2006, more than died in any single year on the Ho Chi Minh Trail during the war. Peace, like war, has its price.

Sometimes we drove for an hour or more without seeing a person, vehicle or village. The road climbed higher and higher. In the valleys and gorges the ribbon of road flowed south through a parasol of high trees. What a lonely and beautiful place, I thought. A new steel bridge spanned a fast-flowing stream; next to it stood a crumbling wooden bridge over which no soldier's sandals had trod in 30 years. We passed a cluster of tents with laundry drying on a line. It was 8 p.m. Twenty or so bare-chested young men were still at work, laying stone for a drainage ditch.

In Dong Ha, a shabby town once home to a division of U.S. Marines, we checked into the Phung Hoang Hotel. A sign in the lobby inexplicably warned in English, "Keep things in order, keep silent and follow instruction of hotel staff." A segment of the twisting mountain highway we had just driven over had been built by a local construction company owned by an entrepreneur named Nguyen Phi Hung. The site where his 73-man crew worked was so remote and rugged, he said, the earth so soft and the jungles so thick that completing just four miles of highway had taken two years.

Hung had advertised in the newspapers for "strong, single, young men" and warned them that the job would be tough. They would stay in the jungle for two years, except for a few days off over the annual Tet holiday. There were unexploded bombs to disarm and bodies of North Vietnamese soldiers—seven, it turned out—to be buried. The site was out of cellphone range, and there was no town within a week's walk. Stream water had to be tested before drinking to ensure it contained no chemicals dropped by American planes. Landslides posed a constant threat; one took the life of Hung's youngest brother. For all this there was handsome compensation—a $130 a month salary, more than a college-educated teacher could earn.

"When we gathered the first day, I told everyone life would be hard like it was on the Truong Son Road, except no one would be bombing them," Hung said. "I told them, 'Your fathers and grandfathers sacrificed on this road. Now it is your turn to contribute. Your fathers contributed blood. You must contribute sweat.' I remember they stood there quietly and nodded. They understood what I was saying."

I left the Ho Chi Minh Highway at Khe Sanh and followed Route 9—"Ambush Alley," as Marines there called it—toward the Ben Hai River, which divided the two Vietnams until Saigon fell in 1975. Looking out the window of my

CLEARING THE WAY
Ordnance specialists clear bombs and lecture students near Dong Ha (below and center). Billboards (right) exhort citizens to build a modern country.

SUV, I was reminded of one of the last promises Ho Chi Minh made before his death: "We will rebuild our land ten times more beautiful." If by beautiful he meant prosperous and peaceful, his pledge was being fulfilled.

Factories and seafood-processing plants were going up. Roads built by the colonial French were being straightened and repaved. In the towns, privately owned shops had sprung up along the main streets, and intersections were clogged with the motorcycles of families who couldn't afford a pair of shoes two decades ago. I stopped at a school. In the fourth-grade history class a teacher was using PowerPoint to explain how Vietnam had outsmarted and defeated China in a war a thousand years ago. The students, sons and daughters of farmers, were dressed in spotlessly clean white shirts and blouses, red ties, blue pants and skirts. They greeted me in unison, "Good morning and welcome, sir." A generation ago they would have been studying Russian as a second language. Today it is English.

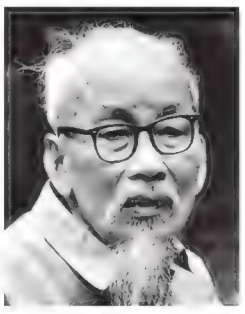
Since the early 1990s, when the government decided profit was no longer a dirty word and, like China, opened its economy to private investment, Vietnam's poverty rate has dropped from nearly 60 percent to less than 20 percent. Tourism has boomed, foreign investment has poured in and the United States has become Vietnam's largest export market. A stock market is flourishing. Vietnam still wears the cloak of communism, but today the blood of free-market reform fills its capitalistic heart.

Two-thirds of Vietnam's 85 million people were born since 1975. For them, the war is ancient history. But for their parents, the trail and its rebirth as a highway are potent symbols of sacrifice and loss, of endurance and patience—a symbol as enduring as the beaches of Normandy are to Allied veterans of World War II.

"My greatest pride is to have followed my father's generation and worked on the highway," said Nguyen Thi Tinh, a senior planner in the Ministry of Transportation, who knows every turn and twist of the new road. Her father, a professional singer and saxophone player, was killed in a bombing attack on the trail while entertaining soldiers in 1966. "I'm embarrassed to say this, but if I'd had a gun at

REBEL WITH A CAUSE

HO CHI MINH WAS LITTLE KNOWN to most Vietnamese in 1911 when he boarded a French passenger ship in Saigon as an assistant cook to discover the world. He spent 30 years abroad, working as a pastry chef in Boston, studying in Paris and moving to Moscow, where he became a Communist agent. He traveled through China, Hong Kong and Thailand before returning covertly to Vietnam and setting up headquarters in mountain caves.



Ho—his full name translates as He Who Enlightens—hoped for reunification of Vietnam, which had fought China on and off for a thousand years, spent nearly a century under French rule and had been occupied by Japan in World War II. Ho died at age 79 in 1969, his dream of a united Vietnam still unfulfilled.

ABOVE: MARC RIBOUD / MAGNUM

SPEEDING FORWARD
While rural Vietnam lags behind, living in poverty and hoping for a brighter future, Hanoi and other cities have produced stunning growth since the war.

the time, I would have killed all Americans," she said. "Then I realized that the same thing that happened to my family happened to American families, that if I had lost my son and I was an American, I would have hated the Vietnamese. So I buried my hatred. That is the past now."

We talked for an hour, just the two of us in her office. She told me how in 1969 she had gone—during a bombing pause—to the battlefield where her father died. With the help of soldiers, she dug up his grave; his remains were wrapped in plastic. Among the bones was a tattered wallet containing an old picture of him with her—his only daughter. She brought him home to Quang Binh Province for a proper Buddhist burial. As I got up to leave, she said, "Wait. I want to sing you a song I wrote." She opened a notebook. She locked her eyes with mine, placed a hand on my forearm and her soprano voice filled the room.

"My dear, go with me to visit green Truong Son.
We will go on a historical road that has been changed day by day.
My dear, sing with me about Truong Son, the road of the future,
The road that bears the name of our Uncle Ho.
Forever sing about Truong Son, the road of love and pride."

IN A FEW YEARS THE HIGHWAY will reach Ho Chi Minh City, formerly known as Saigon, then push on into the Mekong Delta. I left my interpreter and driver in Hue and caught a Vietnam Airlines flight to Ho Chi Minh City. April 1975 and Saigon's last days flashed to mind. Thirty-two years ago, I had spread out a map on the bed in my hotel near South Vietnam's parliament. Each night I had marked the advancing locations of North Vietnam's 12 divisions as they swept down the Ho Chi Minh Trail to the city's doorstep. The end of the war was at hand and it would come amid chaos but with surprisingly little bloodshed.

"I was 12 miles north of Saigon with the 2nd Division before the final advance," said Tran Dau, a former North Vietnamese officer living in Ho Chi Minh City. "We could see the lights of the city at night. When we came in, I was surprised how modern and prosperous it was. We had been in the forests so long that anyplace with pavement would have seemed like Paris."

Dau knew how harsh Hanoi had been toward the South in the nightmarish 15 years following reunification. Southerners by the hundreds of thousands were sent to re-education camps or economic zones and forced to surrender their property and swallow rigid communist ideology. Hanoi's mismanagement brought near-famine, international isolation and poverty to all but the Communist Party elite. In 1978, Vietnam invaded Cambodia, overthrowing the regime of dictator and mass murderer Pol Pot, then, in 1979, fought off invading Chinese troops in a month-long border war. Vietnam stayed in Cambodia until 1989.

The former colonel shook his head at the memory of what many Vietnamese call the "Dark Years." Did he encounter any animosity as a victorious northern soldier who had taken up residency in the defeated South?

He paused and shook his head. "People in Saigon don't care anymore if their neighbor fought for the South or the North," he said. "It's just a matter of history."

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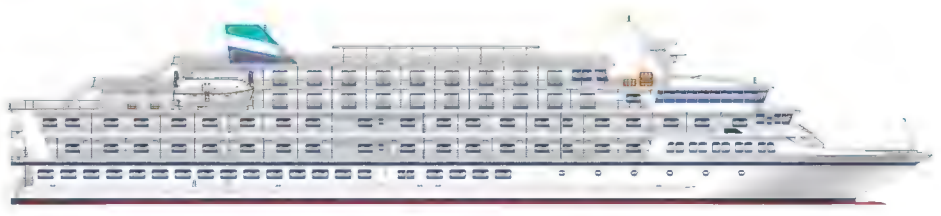

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DESTINATION ASIA

SPRINGS ETERNAL

In rural Japan, stressed workers and tourists seek geothermal ease

BY ANDREW CURRY • PHOTOGRAPHS BY PETER BLAKELY

UNTROUBLED WATERS
With their reputed healing powers, Japan's *onsen*, or volcanic hot springs (above: Teshirosawa), have attracted the weary since the days of the samurai.

IT'S SAID THAT A CULTURE is reflected in its vocabulary. The Japanese *onsen* tradition is a case in point: the word means "hot springs" but involves a whole range of experiences. There are indoor baths (*notenburo*), outdoor baths (*rotenburo*), men-only baths (*otoko-yu*), women-only baths (*onna-yu*) and mixed-gender baths (*konyoku*). It turns out there is even a Japanese expression for the power of hot springs to melt the barriers between people: *hadaka no tsukiai*, or "naked companionship."

When I arrived in Tokyo for the first time last May, my vocabulary was limited to *hai*, or "yes." I had come to visit friends, but after five days of humidity, packed subway cars and the neon-lit crowds in the upscale Ginza shopping district, I was wiped out. When my friend Yukari, a Japanese journalist, suggested we head to a remote rural hot spring and its adjoining *ryokan* (guesthouse), I said hai.

Early on a Saturday morning, Yukari, her husband, Patrick, and I pulled on our hiking boots and headed north on a local train. Outside the window, the high-rises of Tokyo dwindled into suburbs and the suburbs morphed into forests of tall, straight pine trees. The train flashed by small villages, with their two-story concrete houses and well-tended rice paddies. From Kinugawa, a popular resort

town known for its hot springs, we caught a bus that wound along twisting, narrow mountain roads for an hour and a half before finally dropping us off in a parking lot surrounded by thick forest.

As the bus pulled away, I was reminded of how rugged Japan really is. Barely 12 percent of it is flat enough for farming. The rest is mountains, most of them volcanoes that rumble to life hundreds of times every year, sending tremors large and small through the California-size island nation. All this volcanic activity fuels thousands of natural hot springs that bubble out of the ground from Hokkaido in the north to Kyushu in the south. "These geographical circumstances make the Japanese one of the most onsen-loving people in the world," Toshi Arai, an official at the Japan Ryokan Association in Tokyo, told me.

For centuries, the springs, and the reputed healing power of their sulfurous water, have drawn Japan's citizens. Legends report samurai warriors soaking off the aftermath of battle and peasants trekking to famous onsen to heal cuts and burns. In the past century, onsen have become almost synonymous with Japanese tourism. When Japan began to modernize in the late 1800s, trains made it relatively easy for city dwellers to travel to the countryside, and traditional-style inns called ryokan sprang up around the onsen to meet the needs of vacationers. When the nation's economy boomed in the late 1950s, couples and families alike flocked to the inns. Today, there are more than 50,000 ryokan in Japan; the largest have hundreds of rooms and resemble high-end hotels.

The onsen to which we were headed, called Teshirosawa, was far more modest. The attached ryokan has only six rooms. Even getting there is a pilgrimage of sorts. Situated in a national park, Teshirosawa is inaccessible by private car. Guests generally must trek five miles along a rushing river and then through a beech and bamboo forest that is home to troops of wild monkeys.

After a few hours hiking through the forest—and several stops to watch large gray macaques (snow monkeys) peer warily back at us from thickets of bamboo—we finally crested a small hill. Teshirosawa's ryokan is an unassuming, one-story building nestled in a breathtaking valley. It was founded in 1935, when a Tokyo shopkeeper discovered the spring while on a hunting trip and spent his fortune setting up the onsen and inn deep in the forest. Mountains soar straight up hundreds of feet on all sides, their slopes so steep they are almost cliffs. The air is cool and clean.

I left my boots at the front desk (I

BATH AND BED
Volcanic springs in serene settings (below: Teshirosawa's men-only onsen, and, right: a guest room) have made the Japanese "one of the most onsen-loving people in the world."

ALL PHOTOS: PETER BLAKELY / REDUX

wouldn't see them again until I checked out). Sliding open a traditional door made of paper and varnished wood, I dropped my backpack onto tatami mats in a huge bedroom. On my way to the room, I had noticed some trout swimming in a tub by the ryokan's back door. I'd see them again at dinner, fried whole and served with soba noodles and fiery, pickled wasabi greens.

Before I headed outdoors, Patrick gave me the rundown. Onsen aren't places to get clean—you wash before you submerge, using soap and buckets of water. And swimsuits are considered unsanitary. Guests bring small towels (think of a dish towel, cut in half) to dry off with afterward, and that's it. The water can be hot; Teshirosawa's approaches 109 degrees Fahrenheit, and owner Miyayama Chihaka says foreign guests sometimes complain about it.

To walk from my room down the hall to the onsen, I pulled on a lightweight cotton *yukata* (traditional kimono-style robe) that barely reached my knees. As I folded up my tiny towel and set it on the side of the onsen, three Japanese men in the water smiled at me. "*Konnichiwa!*" ("Good afternoon!") one said. I smiled back and gingerly lowered myself up to my neck in the scalding water. One of them, it turned out, spoke some English. "Where you from?" he asked.

"California," I replied.

"Ah!" he exclaimed, turning to his two companions for a quick conference in rapid-fire Japanese. He turned back to me, his smile even bigger. "California! Mamas and Papas!"

I blinked. Then it clicked. Yes! "California Dreamin'"! "That's right!" I said. Cultural connection established (thanks, Mama Cass, wherever you are), we all laughed and talked a bit more in a mixture of English and hand motions. Under the shadow of the tree-covered mountains, listening with one ear to the rushing stream below and with the other to the rush of Japanese, I could feel the water melting away barriers of language and culture. Naked and wet, I relaxed for the first time in days. Hadaka no tsukiai, indeed.

NOODLING TROUT
"We try to use as much local food as we can," says owner Miyayama Chihaka.

Berlin-based author **ANDREW CURRY** *is a former editor at* SMITHSONIAN. *Photographer* **PETER BLAKELY**, *who lives in Japan, covers social, economic and political issues in Asia.*

ON RURAL HIGHWAYS IN Bhutan, trucks hauling huge pine logs rush past women bowed beneath bundles of firewood strapped to their backs. In the capital of Thimphu, teenagers in jeans and hooded sweat shirts hang out smoking cigarettes in a downtown square, while less than a mile away, other adolescents perform a sacred Buddhist act of devotion. Archery, the national sport, remains a fervent pursuit, but American fiberglass bows have increasingly replaced those made of traditional bamboo. While it seems that every fast-flowing stream has been harnessed to turn a prayer drum inside a shrine, on large rivers, hydroelectric projects generate electricity for sale to India, accounting for almost half the country's gross national product.

A tiny nation of 700,000 people positioned uneasily between two giants—India to the south and China to the north—Bhutan was almost as isolated as the mythical realm of Shangri-La, to which it is still compared, until the early 1960s, when the first highway was constructed. Now in a sequence of carefully calibrated moves, the last independent Himalayan Buddhist kingdom has opened itself to the outside world, building better roads, mandating instruction in English for schoolchildren, establishing a television network and introducing Internet service. This month, citizens will conclude voting for a two-house parliament that will turn the

THE CHANGING

As the last Himalayan Buddhist kingdom cautiously opens itself to

A NEW LOOK
Tradition and change coalesce (young monks at a religious festival sport trendy shades, masks and a swastika—for Buddhists, a symbol of good fortune) in the remote, majestic country its citizens call *Druk Yul*, or "Land of the Thunder Dragon."

FACE OF BHUTAN

the world, traditionalists fear for its unique culture

BY ARTHUR LUBOW

country from a traditional monarchy into a constitutional one. The elections were mandated by the fourth king, Jigme Singye Wangchuck, before he abdicated in favor of his then 26-year-old son, Jigme Khesar Namgyel Wangchuck, at the end of 2006. Two political parties scrambled into existence after the decree.

And in another unusual move for the insular country, Bhutan is putting its rich culture on display in the United States in two major exhibitions. The first, which opened at the Honolulu Academy of Arts (February 23-May 23) and will travel to the Rubin Museum of Art in New York City and the Asian Art Museum in San Francisco, focuses on the country's sacred Buddhist art—not only painting and sculpture, but also ancient ritual dances, known as *Cham*, which are usually performed by monks to bless onlookers and impart Buddhist teachings. The second showcase is the annual Smithsonian Folklife Festival, to be staged this summer (June 25-29 and July 2-6) on the National Mall in Washington, D.C. It will include demonstrations of traditional Bhutanese dancing, weaving, metalworking, woodcarving and herbal medicine.

The two exhibitions are part of the centennial anniversary celebration of the nation's monarchy, which was founded on December 17, 1907. More important, Bhutanese leaders hope that the shows will raise awareness of the country's unique culture. "What is required of a small country with a small population is felt ever more strongly with all this globalization," says Dasho Penden Wangchuk, the Secretary of Home and Cultural Affairs. "We feel ourselves a drop in the ocean. And what do we need to survive? Our culture. You want to preserve a plant or the black-necked crane because they are endangered. But [people] are the highest form of living being. The world goes gaga over a particular variety of orchid, but here is a nation. Would you like to see Bhutan disappear?"

Like much of the country's early history, the origins of the name "Bhutan" are obscure; it may derive from Sanskrit words that mean "end of Tibet." Certain facts, however, are clear. Tantric, or Vajrayana, Buddhism—which employs esoteric techniques as a shortcut to enlightenment—took root in Bhutan in the eighth century through the efforts of the Indian sage Padmasambhava, who traveled widely in Tibet and Bhutan and is reverentially referred to as Guru Rinpoche, or "precious teacher." His influence is everywhere, not only in the many temples said to have been constructed by him and his followers, but also in contemporary jurisprudence. When I asked a former Bhutanese smoker why the country banned cigarette sales (a brisk black-market trade persists), I was told that tobacco is made of the ash of a demoness who was shattered into a thousand pieces when kicked by Guru Rinpoche's horse. Such stories probably began as parables for how Buddhism superseded the animist Bon religion in Bhutan. However, the old gods were never completely effaced. Even today, the Himalayas in Bhutan are

THE DRAGON'S GIFT: SACRED BUDDHIST ART COMES TO THE UNITED STATES

Highlights of the exhibition at the Honolulu Academy of Arts (February 23-May 23) include, from left: a copper-and-silver sculpture of a *torma* (a ritual cake left as an offering on temple altars); a wooden image of Zhabdrung Ngawang Namgyal, the 17th-century leader who unified Bhutan; a 19th-century *thangka* (painting on cotton cloth) of Guru Dragpo Marchen, a wrathful form of Padmasambhava, the Indian sage who brought Tantric Buddhism to Bhutan; a 17th-century ornamental *chorten*, or stupa.

MAP: GUILBERT GATES; HONOLULU ACADEMY OF ARTS (4); PP. 72-73 JOSEF POLLEROSS / REDUX

PRAYER FLAGS ABOUND
Manifestations of Bhutan's official religion, Tantric, or Vajrayana, Buddhism, are everywhere. Above, prayer flags punctuate the "Shangri-La" landscape.

BLAINE HARRINGTON III / ALAMY

regarded as deities, and the Bhutanese government forbids mountain climbing, which has attracted so many tourists to neighboring Nepal.

The leader who unified the country in the 17th century, Ngawang Namgyal, is revered today as a saint. Fleeing a power struggle in Tibet in 1616, he settled in western Bhutan, where his particular brand of Buddhism, known as the Drukpa school, was already well entrenched. The charismatic Zhabdrung ("at whose feet one submits"), as he is known, repelled Tibetan armies, subdued feudal lords within Bhutan and began the system of *dzongs*—the fortresses that combine religious and civil jurisdiction in each district. The characteristic style of Bhutanese architecture, with its bay windows and elevated, pitched roofs, as well as the country's religious rituals and unique dress style (the kimono-like *gho* for men and *kira* for women), stemmed from the Zhabdrung's desire to distinguish the country from its expansion-minded neighbor Tibet.

More than anything, though, Buddhism is central to Bhutan's identity. "We believe that Bhutan without Buddhism would not be Bhutan," said Lyonpo Ugyen Tshering, a former Secretary of Labor and Human Resources and now a candidate for the National Assembly. Bhutanese Buddhism flourished for centuries in relative isolation. But the modern world—particularly as seen on television, which arrived legally in the kingdom in 1999—has already produced some undesirable changes. "Acts of violence in the movies, which show so much fighting, have not been so good for our youth," Penden Wangchuk said. "We have had gang fights and youths fighting with each other. This is not a healthy thing. Bhutan stands for peace, tolerance and nonviolence."

Still, most of Bhutan's leaders seem to think that controlled contact with the outside world will be beneficial. Inaugurated in 1974, tourism has since grown steadily; in 2007, nearly 20,000 foreigners visited Bhutan. Travelers are required to make all arrangements through an approved tour operator and spend about $200 a day in the country. This "high-value, low-impact" tourism aims to avoid the experience of Nepal, where hordes of backpackers roam the coun-

ARTHUR LUBOW *wrote about the correspondence between Vincent van Gogh and the artist Émile Bernard in the January issue.*

A SACRED LANDSCAPE

Isolated by its mountainous topography and never colonized, Bhutan, which is about the size of Switzerland, boasts one of the most unspoiled landscapes in the world. In the secluded valley of Bumthang, monks carry a mandala to the river at the conclusion of a nonstop, nine-day Buddhist ceremony.

try without spending much money.

For a religious perspective, I went to Punakha. At an elevation of 4,100 feet, compared with Thimphu's 7,600, this relatively warm town is home to the Buddhist leadership during the winter months. There Thsula Lopen, one of Bhutan's highest-ranking monks, told me that television needn't contradict Buddhist values; in fact, he said, Bhutan now has Buddhist TV shows. (But there is no Nielsen system to measure their ratings against those of the Indian soap operas that have transfixed much of the nation.) "In olden days, there was no communication of our Buddhist religion," he went on, speaking in Dzongkha, the Tibeto-Burman language that originated in western Bhutan and was declared the national language in 1961. "Now, with modernization, I think our religion can spread all over the world."

A 21ST-CENTURY KING
Bhutan's fifth king, Jigme Khesar Namgyel Wangchuck, is 28 years old.

The monarchy in Bhutan began in 1907, when Ugyen Wangchuck—a well-born governor and general who restored peace and order to the country after a period of civil strife—was named the first king by a group of prominent fellow citizens. Jigme Singye Wangchuck ascended the throne in 1972 when he was only 16 and held power for 34 years. Educated in India and Britain, he is a distinctively Bhutanese blend of the traditional and the progressive: he has four wives (all sisters) and a passion for basketball. Abroad, he is best known for championing what he calls "Gross National Happiness"—emphasizing the value of cultural traditions and a clean environment, for example—over untrammeled development.

He has explained his push to democratize Bhutan as a safeguard against the risk that some future monarch might be incompetent or worse. But his desire to maintain the nation's sovereignty likely influenced his decision. Recent decades have proved disastrous for other Himalayan Buddhist states. Tibet was taken over by China in 1950, self-governing Ladakh was divided between India and Pakistan in 1949 (with China grabbing a portion from India in 1962), and, in 1975, India annexed the kingdom of Sikkim, following a steady influx of Hindu immigrants from Nepal that left Buddhists in a minority. The hope is that a democratic Bhutan would more readily elicit world support if its sovereignty were challenged. "Democracy may not be the best form of government," Penden Wangchuk told me, "but it is the one accepted by the world."

But Bhutan's path to democracy has been bumpy. In the

TRADITIONAL CRAFTS AND BUDDHIST RITUAL DANCES ON DISPLAY
The 2008 Smithsonian Folklife Festival, to be held on the National Mall (June 25-29 and July 2-6), will showcase weaving (below left: material for the kimono-like *gho* worn by men is made on a backstrap loom) and *thangka* painting (far right: students work on thangkas at a school in Thimphu). The festival will also feature sacred ritual dances such as the Black Hat dance (center).

RAVEENDRAN / AFP / GETTY IMAGES; JOSEF POLLEROSS / REDUX; PP. 76-77 MATTHIEU RICARD / GETTY IMAGES

1980s, perhaps motivated by a desire to avoid Sikkim's fate, the government redefined citizenship to exclude those who could not claim Bhutanese parentage on both sides. Southern Bhutanese, most of whom are Nepali-speaking Hindus, were also required to produce a tax receipt from 1958 (the year a nationality law first defined what it meant to be a Bhutanese citizen). The government said it was attempting to control illegal immigration; southern Bhutanese protested that legitimate citizens were also being forced to leave. For two years, beginning in late 1990, refugees poured out of southern Bhutan and into Nepal, where camps were set up to house them. Today there are some 107,000 people in those camps, although how many are originally from Bhutan remains a topic of impassioned dispute. The U.S. government has offered to accept as many refugees as would like to come to the United States. In the meantime, Maoist groups operating from Nepal have threatened to disrupt the elections. On January 20, four bombs went off in Bhutan; the police said they suspected that Nepal-based Maoists were responsible.

THE FIRST ELECTION
On December 31, 2007, citizens cast their votes for a National Council.

The fifth king, who has already taken charge and will be officially crowned this spring, has not deviated from his father's policies, including the former king's approach to the refugee problem. He also apparently endorses his father's environmentalism. Not only is logging strictly supervised, but a draft constitution, expected to be approved this year by the new National Assembly, requires Bhutan to maintain 60 percent of its land as forest. Yet some citizens worry that the newly empowered electorate's demand for basic services could threaten the nation's remarkable range of native plants and animals. Bhutan boasts 360 varieties of orchids, 650 species of birds and such rare fauna as the snow leopard and the red panda. "If every village has to be connected by roads, electricity and medical facilities, it will not be a very pleasant thing environmentally," said Lam Dorji, executive director of the Royal Society for the Protection of Nature, a private environmental group. "We are in a fragile mountain ecosystem."

None of the Bhutanese citizens I met seemed particularly enthusiastic about their impending conversion to democracy, an observation with which Dasho Kunzang Wangdi, the country's chief election commissioner, agreed. "People are perfectly comfortable with the way things are," he told me. Both of the political parties vying for control of the National Assembly this month share an allegiance to the royal vision. "We are not starting a party because we have a better vision; we are starting a party because the king has ordered it," said Tshering Tobgay, a founder of the People's Democratic Party. "Do we have an ideology other than we want to continue what the king is doing?" He smiled, amused, perhaps, by the notion that a politician might criticize the king. At least in the short term, a democratic Bhutan may not look so different from the Bhutan of today.

TOP: RUPAK DE CHOWDHURI / REUTERS; PP. 78-79 SHUZO UEMOTO / HONOLULU ACADEMY OF ARTS; GONZALO AZUMENDI / AGE FOTOSTOCK

To see additional images of the arts of Bhutan, go to Smithsonian.com/bhutan

DESTINATION ASIA

FORBIDDEN NO MORE

As Beijing gets ready to host its first Olympics, a veteran journalist returns to its once-restricted palace complex

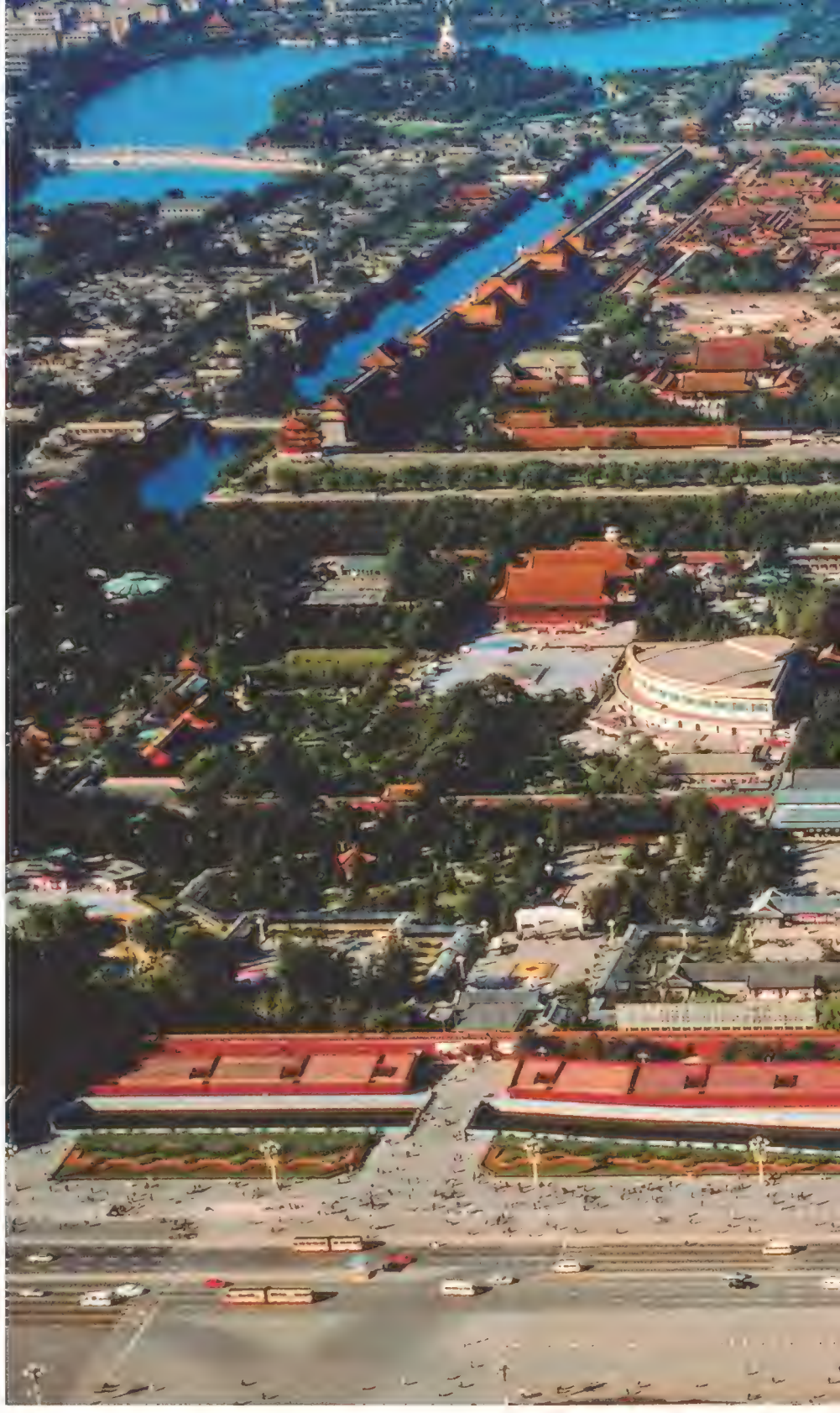
BY PAUL RAFFAELE

TO THE NINES
Doors to the Hall of Middle Harmony have nine rows of nine knobs because the number nine is prized in Chinese numerology.

I HAD EXPECTED TO FEEL AWE AS I approached the Meridian Gate guarding what most Chinese call the Great Within—Beijing's Forbidden City—but I'm surprised to feel apprehension, too. After all, it's been a while since the emperors who ruled from behind these formidable walls casually snuffed out lesser lives by the thousands. From 1421 to 1912, this was the world's most magnificent command center—a reputed 9,999 rooms filled with nearly a million art treasures spread over 178 walled and moated acres.

Had I accompanied the Italian Jesuit Matteo Ricci, the first Westerner to visit the Forbidden City, in 1601, I would have seen these pavilions, courtyards and alleyways bustling with courtiers: concubines clad in silk, gold and jade; eunuchs serving as cooks, cleaners, clerks, compilers and companions; and the emperor's hard-eyed troopers bearing curved swords. But when I first visited, in 1973, not a single human voice sullied the silence, though the cawing of crows sounded like warnings and I thought the

TALL ORDER
Workers renovate the Hall of Supreme Harmony, the tallest building in the complex.



THIS WAY IN
The Meridian Gate serves as an entry for tourists from all over China and the world beyond.

breeze playing about my ears could be the whispers of emperors past. I spent that first day 35 years ago treading the ancient clay bricks and marveling at the long procession of scarlet pavilions. Most were locked, and there were no guides to tell me their secrets. Mao Zedong was then putting China through his Cultural Revolution, and he had virtually closed the entire nation to outsiders. He had also sent the intellectuals—including, I assumed, the Forbidden City's guides—out to the countryside to toil with peasants in order to clean the dung from their overintellectualized brains.

I fell in love with the Forbidden City that long-ago day, and over the next 18 months visited it often. Back then, I was frustrated by how much of it was off-limits. But when I returned recently for three weeks of indulgent exploration, its formerly hidden glories were revealed.

MAO'S CAPITAL WAS STILL a backwater in 1973, when I was the first Australian journalist to be based in Communist-ruled Beijing. Today, it is the capital of an emerging economic colossus. The ramshackle airport terminal I knew so well traffics in charter flights and gathers weeds, while a new one, completed in 1980, disgorges tens of thousands of visitors every day. (A big, brassy addition is slated to open before China hosts the Olympic Games in August.) In 1973, a crumbling two-lane road led through run-down villages and past carts hauled by donkeys (and men) to the capital, some 15 miles away. Now, an eight-lane highway carries shiny Toyotas and Mercedes-Benzes into the heart of Beijing.

Back in 1973, no more than a thousand cars navigated Beijing's potholed roads; now, my taxi driver tells me, there are more than two million. I look in vain for the ancient landmarks that dominated the once-graceful city center, but they have been obscured, or worse, by high-rise apartments, flashy hotels and shopping malls. In its latest great leap forward, the government has targeted the economy to quadruple by 2020. By 2040, many predict, China will have the world's largest economy. If, in this frenzied dash for wealth and influence, much of the old capital has been demolished, at least Tiananmen, the massive square fronting the Gate of Heavenly Peace south of the Forbidden City, remains. In 1989 the square was the site of antigovernment protests that left hundreds dead (estimates range from 200 to 3,000 or more), but now it is much as I remember it. Mao may have been responsible for more than 40 million deaths, but his portrait still hangs in a place of honor above the giant gateway. And his mummified body lies in an eerie mausoleum in the square.

From Tiananmen, one can glimpse the Forbidden City beyond the gate—pavilions roofed in yellow tiles and pagodas that only hint at the opulence inside. To my eye, the complex's luster is being tarnished, or rather tarted up, by ill-conceived restoration efforts: in one of the larger squares, masons are replacing ancient bricks with sheets of pale-gray slate, and outside many prominent pavilions, painters are slathering glossy paint over the traditional ocher-based flat finishes, which absorb light and gave the

JUSTIN GUARIGLIA; PP. 80-81 JUSTIN GUARIGLIA; P. 81 CHEN TUANJIE / CHINAFOTOPRESS

SEEKING HARMONY
The palace complex was intended to model the cosmos, to help the emperor balance the celestial and the mundane.

place an ageless look. But the scale and purpose of the Forbidden City still echo through the centuries. The Yongle emperor, son of the Ming dynasty's founder, commissioned the complex in 1406, choosing the spot where, a century and a half before, the Mongol ruler Kublai Khan had set his fabled winter capital, Khanbalik. According to the book *Forbidden City*, by the British Sinologist Frances Wood, a hundred thousand craftsmen and a million laborers and convicts toiled three years to create this earthly paradise, which the emperor's court occupied in 1421.

ONCE THROUGH THE MERIDIAN GATE, I am surrounded by a sea of humankind, with myriad accents and languages identifying visitors from all over China and the world beyond, but the grandeur of the place seems to need no translation. "As the Son of Heaven, the emperor's most important duty was to keep the balance between Heaven and Earth," says Yang Xin, 86, a professor of philosophy at what is still officially known as Peking University. "To help him achieve this, the Forbidden City was designed as a small model of the entire cosmos."

Its planners, following more than a thousand years of imperial tradition to convey a sense of harmony, set the most important buildings on a north-south axis and symmetrically flanked them with lesser structures. The Meridian Gate, U-shaped and with high red walls, was designed to heighten visitors' anticipation of being in the emperor's presence, Yang told me. Passing through a high vaulted passageway, I suddenly see five white stone bridges crossing a stream in front of a plaza that my guide says could hold 50,000 courtiers. Above the square hovers the 15th-century Hall of Supreme Harmony, at 120 feet the tallest building in the complex. "All important ceremonies were held in the

PAUL RAFFAELE, *a frequent contributor to the magazine, wrote about the ark of the covenant for the December 2007 issue.*

PP. 82-83 HU WEIBIAO

square or in the hall," Yang said. "The emperor was married here, ascended the throne here, celebrated the New Year here and dispatched generals to fight wars from here."

In this square, on ceremonial days, a royal deputy would command tens of thousands of courtiers and military officers to *ke tou* to the emperor, seated out of sight in the main hall. The massed subjects would fall to their knees and bow their heads to the pavement nine times.

In 1793, Britain's first envoy to China, Lord Macartney, arrived to negotiate a trade treaty, bearing such gifts as air guns, a 25-foot-tall clock, a hot air balloon, telescopes and a planetarium. But when he was presented to Emperor Qianlong, he declined to "kowtow"—to do so, he felt, would demean Britain's ruling king, George III. After several meetings at which the emperor declined to talk business, he sent Macartney packing with a note: "We have never valued ingenious articles, nor do we have the slightest need of your country's manufactures," it read. "Our Celestial Empire possesses all things in prolific abundance and lacks no product within its own borders. There was therefore no need to import the manufactures of outside barbarians in exchange for our own produce."

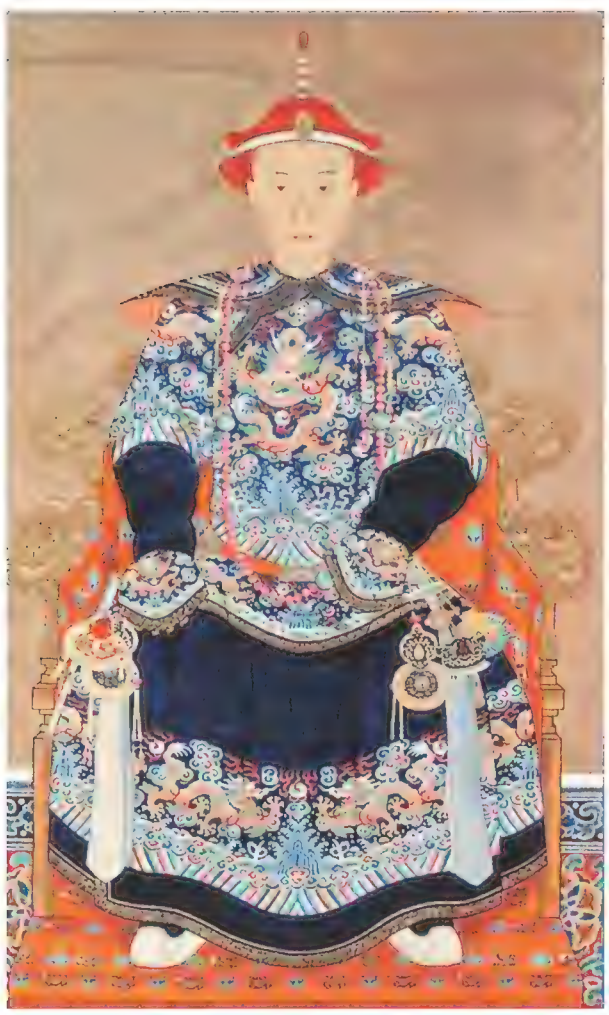
It was under Qianlong, who reigned from the 1730s to the 1790s, that China extended its rule west to what is now Xinjiang province and south to Tibet, doubling its territory and becoming the world's richest and most populous nation. He appointed the Tibetan religious leader, the Dalai Lama, as a tributary ruler and protected him with Chinese troops. "Qianlong was not only a great warrior, but also a great painter and poet," says Yuan Hongqi, a deputy director of the Palace Museum. "He's my favorite emperor."

Mine, too. When he was 65, Qianlong finished building a retirement palace and garden of his own design, but he held on to the throne for another 20 years. As it happens, during my visit the Palace Museum and the World Monuments Fund announce a major restoration of the garden with help from Smithsonian Museum Conservation Institute experts, to be completed in 2016.

THE HALL OF SUPREME HARMONY, where emperors conducted affairs of state, is by general consent the most magnificent building in all of the Forbidden City. In constructing it, its builders relied on cosmology and feng shui (literally, "wind and water"), the belief that orientation and environment wield good and bad influences. The builders also believed the numbers nine and five to be auspicious. So the trained eye sees many combinations of nine, from passageways leading to squares, to golden knobs decorating giant doors—nine across, nine down—to the famed Nine Dragon Screen. (And remember those 9,999 rooms?) Erected in 1771, the screen is 95 feet long and 12 feet high. Its 270 glazed tiles form nine five-clawed dragons set against a backdrop of roil-

RISE AND FALL

Under Qianlong (left), China was the world's richest nation in the 18th century. Cixi (second from left, c. 1890) oversaw an era of instability. Her grandnephew Puyi (with his father and younger brother, c. 1908)—China's last emperor—stayed at the Forbidden City until 1924 (fourth from left). "Puyi never wanted to be emperor," says his brother-in-law Run Qi Guo Bu Luo.



GRANGER COLLECTION, NEW YORK; UNDERWOOD & UNDERWOOD / CORBIS

ing clouds and sea. "Five is important because it's midway between one and nine," says Professor Yang. "So the imperial dragons have five claws, while all other dragons have three."

The dragon represented imperial traits: benevolence, excellence, boldness, heroism, perseverance, nobility and divinity. And so dragons are everywhere. Two perch on the roof of the Hall of Supreme Harmony, and 1,142 marble dragons' heads disguise the downspouts at its base. A marble ramp carved with dragons leads to the hall, where there are more dragons inside—13,844, to be precise—adorning columns, screens, walls, eaves and ceiling. More still run rampant over the Dragon Throne, while above it a painted dragon plays with a giant mock pearl. When I ask Li Ji, the Palace Museum's executive deputy director, just how many dragons there are in the Forbidden City, he gestures helplessly. "Too many to count," he says.

SHOCK AND AWE
Many visitors accept the unlikely story that this tiny well claimed Zhen Fei's life.

BEYOND TWO OTHER impressive pavilions—the Hall of Central Harmony and the Hall of Preserving Harmony—a pair of golden lions stand guard at the Gate of Heavenly Purity, the entrance to the emperor's private quarters, which is surrounded by high red walls. Next to the entranceway I see, improbably, a Starbucks in a building in which officials once waited to see the emperor. (The coffee emporium has since closed, after a Chinese blogger stoked widespread opposition to the franchise.) More modest pavilions once housed imperial concubines.

"The emperor chose his night companion from nameplates presented to him by a eunuch," says Yuan. A high-ranking eunuch, the Chief of the Imperial Bedchamber, would remove the woman's clothes to ensure that she carried no weapons or poisons, roll her up in a quilt and carry her on his back through the courtyards to the emperor.

During the Qing dynasty (1644-1912), only Manchu girls were eligible to become the emperor's concubines. (Manchus, warlike nomads from the northern steppes, made up just 2 percent of China's population yet ruled the country.) Typically, the empress dowager—the emperor's mother—led the selection process. In a famous 18th-century Chinese novel, *Dream of a Red Mansion*, an imperial concubine reflects on her pampered servitude: "How much happier are those whose home is a hut in a field, who eat salt and pickles and wear clothes of cotton, than she is who is endowed with wealth and rank, but separated from her flesh and blood."

Passions and ambitions stewed in this world within a world. In Chinese lore, more than 200 concubines died on the orders of the 16th-century emperor Shizong. Seeking to end their misery, 16 members of his harem stole into his bedcham-

TOP: DENNIS COX / CHINASTOCK; TOP (INSET): IMPERIAL PALACE MUSEUM; PP. 84-85 HULTON-DEUTSCH COLLECTION / CORBIS; BETTMANN / CORBIS; PAUL RAFFAELE

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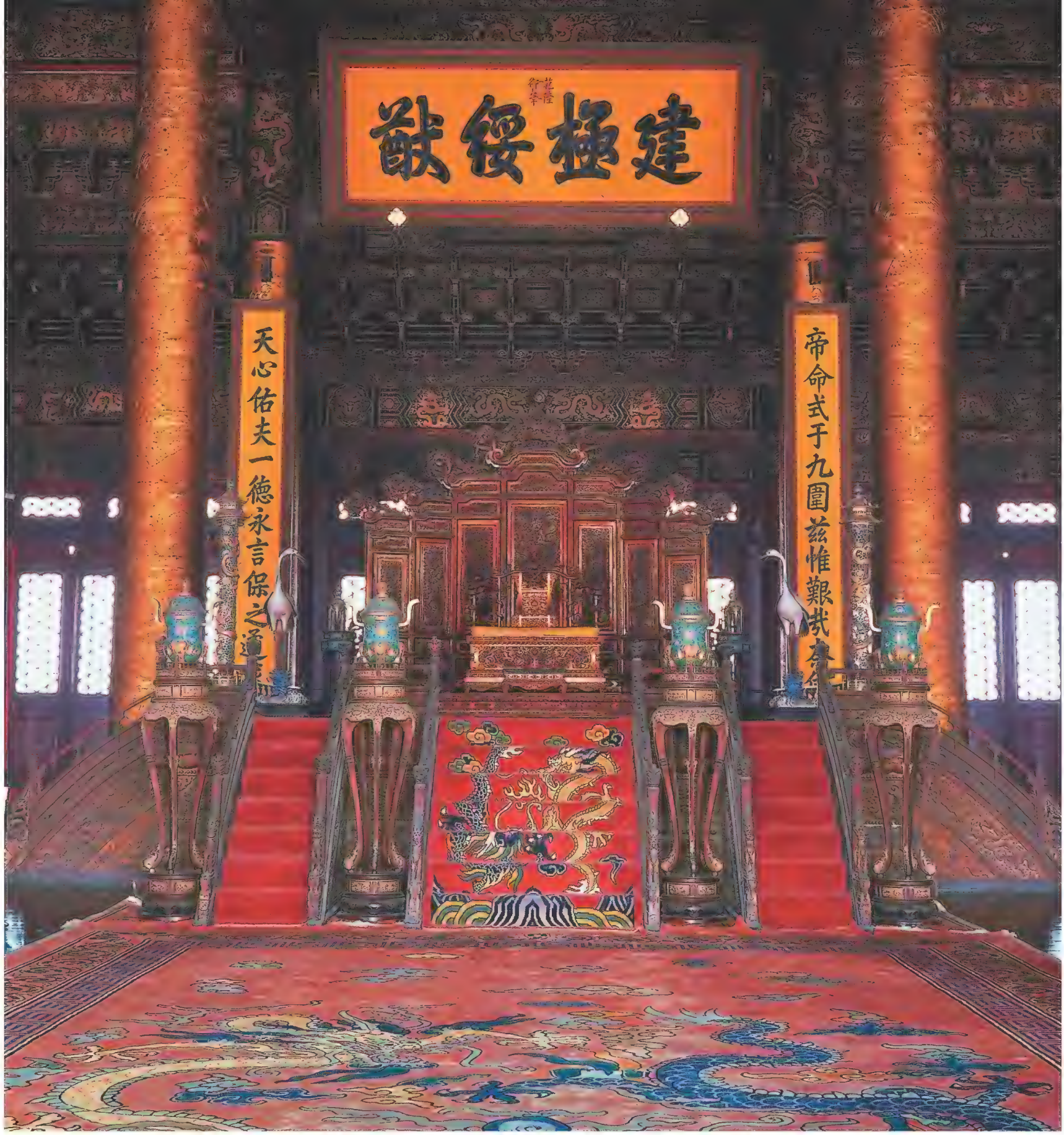

SEAT OF POWER
The emperors ruled from the throne in the Hall of Supreme Harmony.

YIN NAN / IMAGINECHINA

ber one night to strangle him with a silken cord and stab him with a hairpin. The emperor lost an eye in the struggle, but the empress saved his life. Court executioners then tore the limbs from the concubines and displayed their severed heads on poles.

Concubines often developed close attachments to the eunuchs, whose role as royal servants in China long preceded the building of the Forbidden City. In his autobiography, Emperor Puyi wrote that eunuchs at the court "were most numerous during the Ming dynasty (1368-1644) when they reached a strength of 100,000," but that number had dwindled to about 3,000 by the time Puyi became emperor, in 1908. The eunuchs, castrated to prevent nonimperial pregnancies among the concubines, tended to know their master's weaknesses and were often willing to exploit them. "The emperor in many cases became the plaything of those pariahs from the normal world," writes Taisuke Mitamura in *Chinese Eunuchs: The Structure of Intimate Politics*. "They deftly colored for their own purposes the ruler's picture of the outside world and turned him against any ministers who tried to oppose their influence."

Most eunuchs had chosen their way of life, says Yuan. "It seemed a little thing to give up one pleasure for so many," an unnamed eunuch told the British Sinologist John Blofeld in *City of Lingering Splendour*, Blofeld's memoir of early 20th-century Beijing. "My parents were poor, yet suffering that small change, I could be sure of an easy life in surroundings of great beauty and magnificence; I could aspire to intimate companionship with lovely women unmarred by their fear or distrust of me. I could even hope for power and wealth of my own."

The eunuch Li Lienying aligned himself with China's

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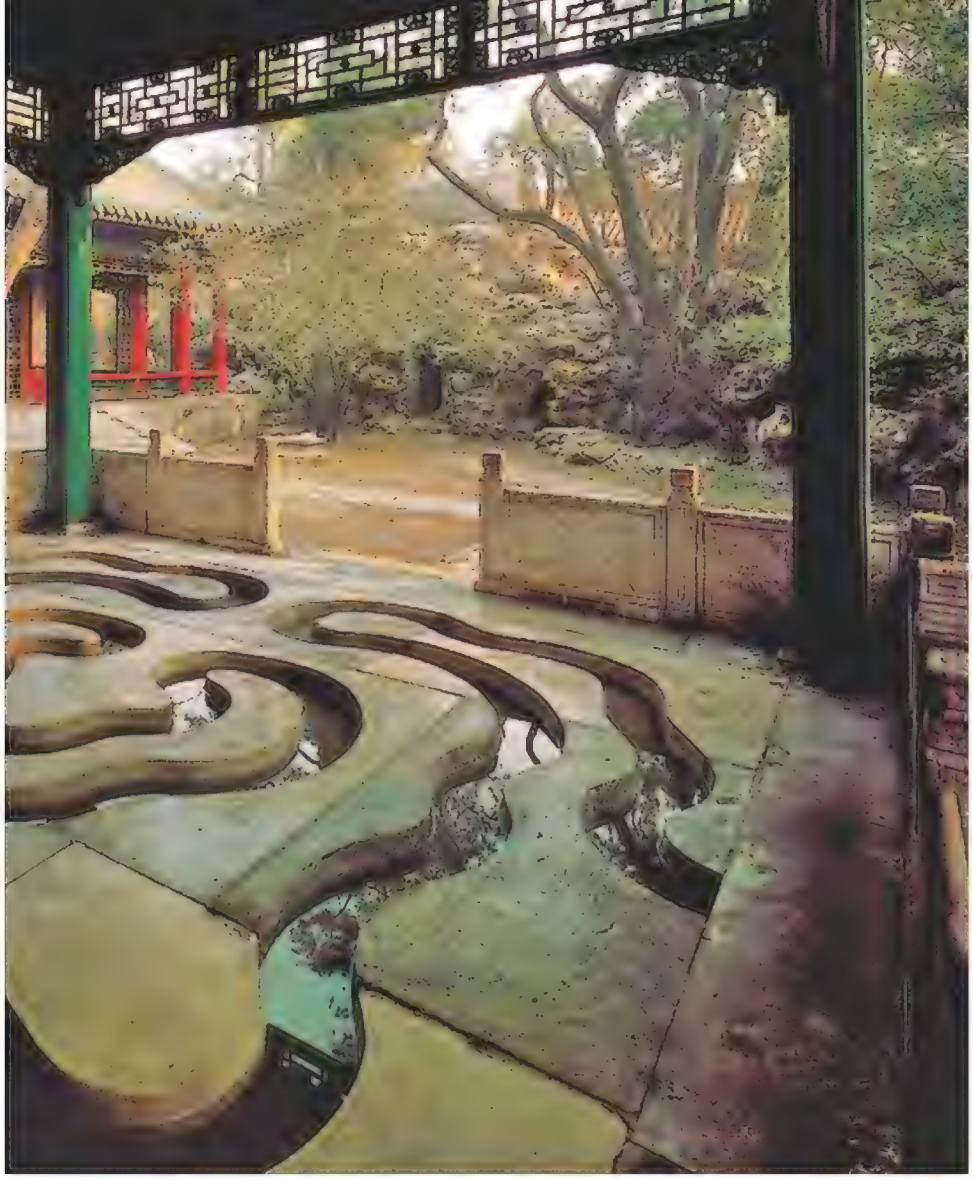

ORDER IN THE COURT

The palace abounds in imperial perquisites (clockwise, from top left): a canal was cut into the stone floor of a pavilion so servants could float cups of wine for guests; a succession of doors leads to the West Palaces, and a section of the Nine Dragon Screen celebrates benevolence and other royal traits. The figurines on the roofing were intended to protect against evil spirits.

most infamous concubine, Empress Dowager Cixi. Only the third ruling empress in China's two-millennium imperial history, Cixi was perceived as the power behind the Dragon Throne for some 47 years, until her death in 1908. Court gossip had it that she fell in love with Li Lienying, and that they conspired to murder her potential rivals; British journalists depicted her as a cunning, sexually depraved tyrant. But Sterling Seagrave writes in *Dragon Lady*, his 1992 biography of the empress, that "slandering Tzu Hsi (Cixi) became a literary game over the decades." Her reign coincided with the empire's tumultuous decline.

Cixi entered the Forbidden City as a concubine in 1851, at age 16, and delivered Emperor Xianfeng his only male heir five years later, Seagrave writes. After Xianfeng died in 1861, possibly from the effects of his extended debaucheries, her son, then 5, took the throne as Emperor Tongzhi; she was named an empress dowager and Tongzhi's co-regent. Tongzhi ruled as emperor for only two years before dying of smallpox or syphilis at age 18, and Cixi again served as regent—first when her 3-year-old nephew was named Emperor Guangxu, and again when, as an adult, he was nearly deposed for allying himself with a radical reform movement that failed. Just before she died in 1908, at age 72, Cixi arranged for Guangxu's nephew—

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her grandnephew—to be named the last emperor of China.

Her place in the Chinese imagination is suggested by the number of home-grown tourists I saw jockeying for camera position at a small stone well near the northern gate by the Palace of Peace and Longevity. The story goes that when European troops, in Beijing in 1900 to put down the Boxer Rebellion, threatened to attack the Forbidden City, Cixi summoned Guangxu and his favorite concubine, Zhen Fei, then ordered the palace evacuated. Zhen Fei begged for the emperor to stay behind and negotiate with the invaders. The empress, enraged at the so-called Pearl Concubine, ordered some eunuchs to get rid of her, which they supposedly did by throwing her down this well.

Seagrave writes that there is no evidence to support this "dark fable." And Cixi's great-great-nephew, Yehanara Gen Zheng, a Manchu nobleman, offers an alternative version. "The concubine was sharp-tongued and often stood up to Cixi, making her angry," he told me. "When they were about to flee from the foreign troops, the concubine said she'd remain within the Forbidden City. Cixi told her that the barbarians would rape her if she stayed, and that it was best if she escaped disgrace by throwing herself down the well. The concubine did just that." Whatever the truth—and from the size of the well I doubt both versions—Chinese visitors are drawn to it by the thousands.

INSIDE THE IMPERIAL GARDEN—trees and walkways, ponds and pavilions created for the emperors' private pleasure—gilded bronze elephants squat beneath twisted cypress tree trunks. I have never come here without thinking about Puyi, the subject of Bernardo Bertolucci's Academy Award-winning 1987 movie, *The Last Emperor*. Poor Puyi. Born in 1906, he was named emperor just before his third birthday; after revolution swept his domain, the forces that would establish the Republic of China forced him to abdicate when he was 6. The miscast ruler spent the next 12 years as a virtual prisoner; the garden was his sanctuary.

MAO AND THEN
His troops almost sacked the palace, but his portrait still dominates.

Run Qi Guo Bu Luo, Puyi's brother-in-law, consulted on the Bertolucci movie. At 96, he lives in a small apartment near the Forbidden City. "Puyi never wanted to be emperor," he told me. "His great wish was to go to England and study to be a teacher." But even after abdicating, he could not escape the perils of power. In his autobiography, Puyi writes that he was eating an apple at 9 a.m. on November 5, 1924, when Republican troops gave him three hours to vacate the Forbidden City. That afternoon, after signing a declaration that "the imperial title of the Hsuan Tung Emperor of the Great Ching is this day abolished in perpetuity," the Son of Heaven fled in a fleet of limousines.

Puyi moved to Tianjin, in northeastern China, then controlled by the Japanese. In 1932, the Japanese set him up as the ruler of Manchukuo, their puppet state in Manchuria. In the waning days of World War II, he was captured by Soviet forces, and in 1950 repatriated to what had become the People's Republic of China. After ten years in a reeducation camp, he worked for the government as an editor. Puyi died at age 61 in 1967 as the Cultural Revolution was getting underway.

The fervor of that revolt almost claimed the Forbidden City. The Red Guards, having plundered historical sites to further Mao's aim of effacing anything traditional, planned to sack the Forbidden City, too. But Premier Zhou En-lai ordered the gates closed and sent other troops to protect it, thus preserving, among so much else, the Gate of Heavenly Peace, where the chairman's portrait still hangs.

To learn more about Empress Cixi, go to Smithsonian.com/empress

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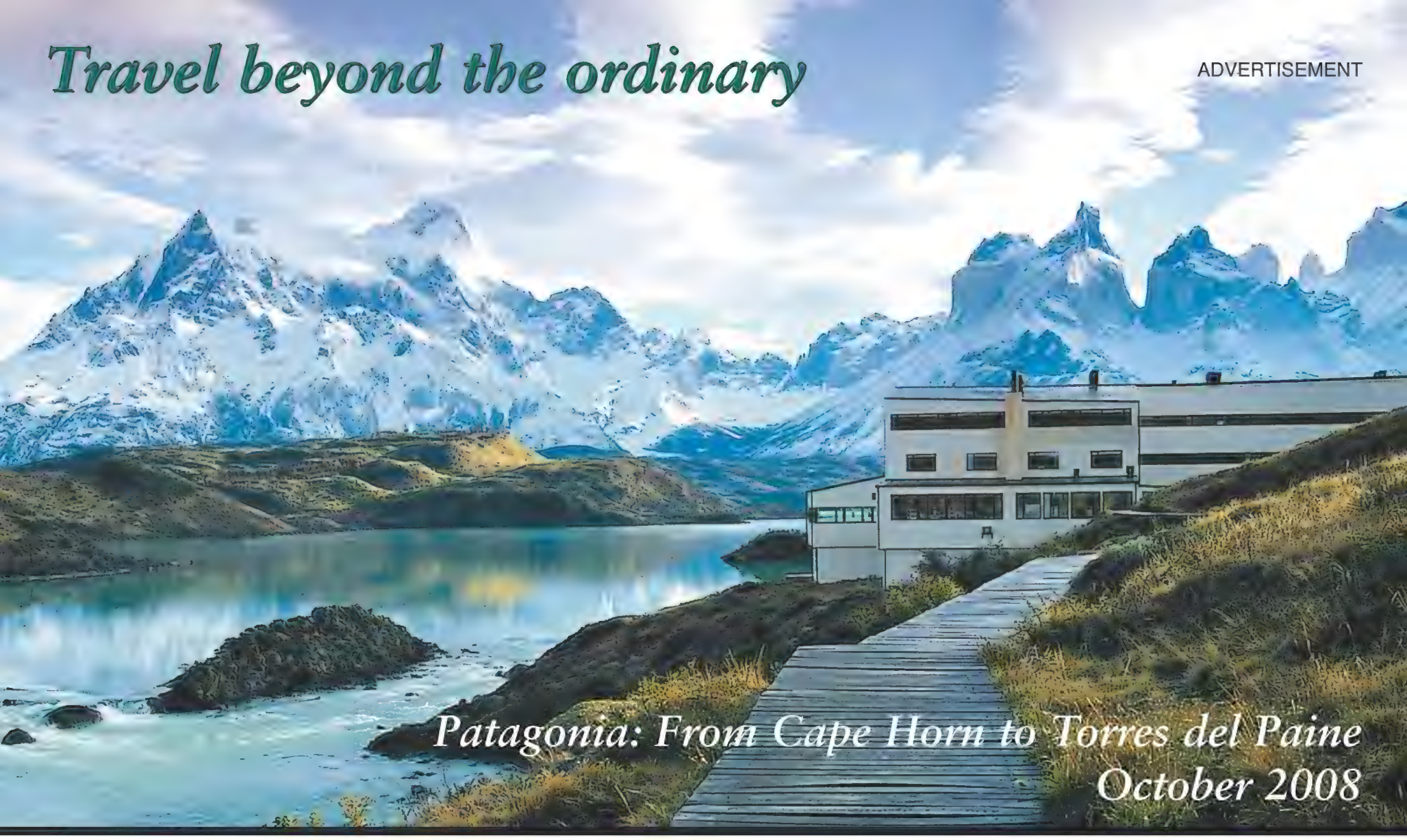

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Bangkok's Songkran New Year festival washes away bad luck.

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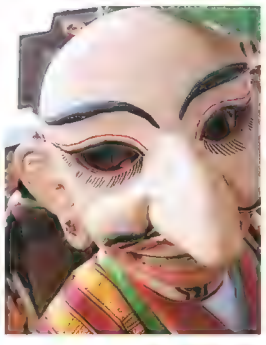
BHUTAN

OCT. 9-11
Dzongs (temple-fortress compounds) in the capital of Thimphu come to life with music and dance during the *tshechu* festival. Monks wearing masks (below) perform dances venerating Buddhist saints.



CAMBODIA

NOV. 10-16
Two million people will flock to the Tonle Sap River in Phnom Penh for the Bon Om Tuk water festival. Some 450 dragon boats race in honor of an unusual event: the river's current changing direction.

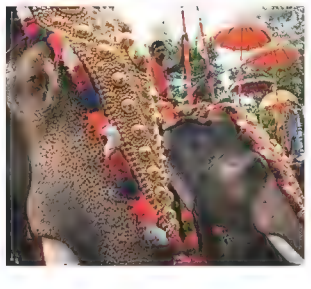
CHINA

AUG. 8-24
The world's top athletes will gather in Beijing for the 2008 Summer Olympics. The city's new National Stadium, the "bird's nest" (below), was built for the Games.

NOVEMBER
More than 200 galleries from around the world will showcase 10,000 works at the annual Shanghai Art Fair, the largest of its kind on the continent.

INDIA

MAY 13
During Kerala's colorful festival of Thrissur Pooram, two lines of 13 elaborately decorated elephants (below) parade against a background of music and fireworks.



SEPT. 12
The harvest festival of Onam, also held in Kerala, is known for its ornate costumes, lavish feasts and intricate, artful *pookalam*, or flower carpets.

INDONESIA

JUNE 17-JULY 15
A grand parade opens the month-long Bali Arts Festival (below) of dance, theater, visual arts and special events, from gong competitions to fashion shows.

JAPAN

APRIL 23-MAY 5
The 2,600 *sakura* (cherry blossom) trees at Hirosaki Castle in northern Japan are not to be missed. When in bloom, the trees provide a vivid counterpoint to the 17th-century castle and ancient pine trees.

MAY 11-25
Sumo wrestlers compete annually in six grand, 15-day tournaments, or *basho*, to determine the champion of Japan's national sport. Fans can view the seconds-long, tense matches at the Natsu Basho in Tokyo.

DEC. 2-3
The town of Chichibu, outside Tokyo, hosts a boisterous parade and fireworks. The highlight is in the evening, when the 33-foot-tall, 10-ton floats are illuminated with countless lanterns.

NEPAL

OCT. 26-30
In Katmandu, dogs are adorned with flower garlands (right, top) and offered special meals during the Hindu festival of Tihar, held to honor animals and the Goddess of Fortune.

THAILAND

APRIL 13-15
Prepare to get soaked at the Songkran New Year festival (top) in Bangkok. Water from buckets, pistols, hoses and elephant trunks flies through the air during the hottest time of year. It's believed that the ritual will wash away bad luck.

VIETNAM

SEPTEMBER 14
Children are celebrated throughout Vietnam during the Tet Trung Thu festival. Proud parents give moon cakes (made of sesame seeds and lotus flowers) to their children, who carry colorful lanterns through the streets.

JESS BLUMBERG

For additional highlights and hotspots, visit Smithsonian.com/calendar

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PRESENCE OF MIND

A Record Find

How *The Phantom of the Opera* led me to a long-lost musical treasure in Paris

BY MICHAEL WALSH

WITH 20 YEARS' HINDSIGHT, it's easy to see that it was right there on the page, hiding in plain sight: "It will be remembered that, later, when digging in the substructure of the Opéra, before burying the phonographic records of the artist's voice, the workmen laid bare a corpse." Thus wrote Gaston Leroux in his horror classic, *The Phantom of the Opera*, first published in 1910.

As readers, we are naturally drawn to the last words of that sentence: "a corpse." Dead bodies—fact or fiction—get our attention. Based on the author's clues, the mind races to the crime scene: "the substructure of the Opéra." And so, in our haste to discover this poor unfortunate's identity, we overlook the most important words of the sentence: "before burying the phonographic records."

Few readers pick up a novel, especially a thriller, expecting a guidebook. They want to be swept away by plot and character; the story's setting is usually an afterthought. Novelists, however, know better. The best fiction is grounded, made real, by its sense of place.

So the question is not, *what corpse?*

It is, rather, *what records?*

Music lovers around the world were stunned this past December when the Opéra National de Paris and the Bibliothèque Nationale de France announced a major discovery: a time capsule, dredged up from a subbasement of the

In 1907, recordings were interred in metal urns at the Palais Garnier (above), to be reopened in 100 years. Then they were forgotten—but rediscovered, by chance, in time to be displayed last year (left).

For a list of 1907 recordings, visit Smithsonian.com/presence

OPÉRA NATIONAL DE PARIS; PIERRE VERDY / AFP / GETTY IMAGES

Clockwise starting top left: Caño Negro Wildlife Refuge; Tortuguero Park Canal Cruise; White Faced Monkey; Keel Billed Toucan; Manuel Antonio Park; Rainforest Hike

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The recordings feature more than 20 artists, including Enrico Caruso (top: offering a blessing in a role from *La Juive*, or *The Jewess*) and Adelina Patti.

Palais Garnier, which is also known as the Opéra. Carefully packed away inside two large metal urns was not just one phantom of the opera but many—24 gramophone discs featuring such long-dead artists as Nellie Melba, Adelina Patti, Emma Calvé and Enrico Caruso. In 1907, the discs had been entombed, like Aida's lovers, beneath a great architectural monument.

Though I am a music lover, I was not among the stunned, for, in 1987, I had rediscovered the room where the records had been cached. Several stories underground, far beneath the rush

GRANGER COLLECTION, NEW YORK (2)

Several stories underground, I spied a metal door bearing a dusty plaque that had to be wiped and illuminated before it could be read.

AKG-IMAGES

The French soprano Emma Calvé was recorded singing "Habanera" from Georges Bizet's *Carmen*, the role for which she received the greatest acclaim.

of traffic on the Place de l'Opéra, I spied a metal door bearing a dusty plaque that had to be wiped and illuminated before it could be read. "Gift of M. Alfred Clark, 28 June, 1907," it said in French. "The room in which are contained the gramophone records." I had bumped into it serendipitously, but I recognized it immediately—not for musical reasons, but for literary ones.

At the time, I was involved in two related projects: a biography of Andrew Lloyd Webber, whose sensational setting of *The Phantom of the Opera* had been the talk of London for a year, and,

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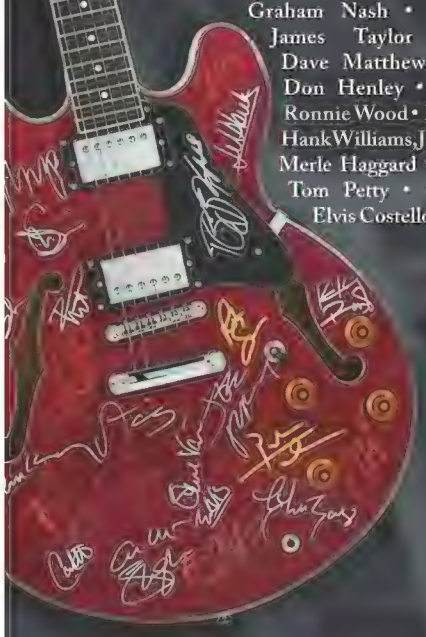

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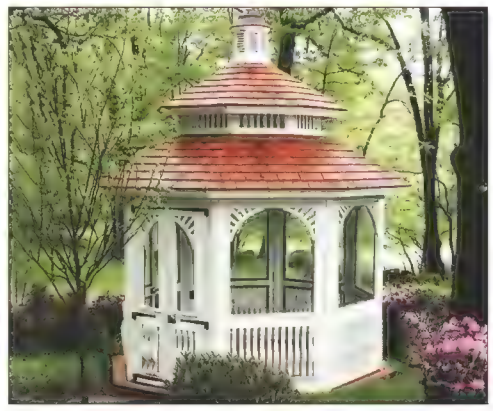

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Gaston Leroux's meticulous descriptions of the Palais Garnier in *The Phantom of the Opera* led the author to realize that he had found the forgotten recordings.

for *Vanity Fair* magazine, an article that featured Sarah Brightman, the *Phantom*'s original Christine (and the then-Mrs. Andrew Lloyd Webber), posing in character around the Palais Garnier, where the novel is set and where the opera company staged its productions from 1875 to the opening of the Opéra de la Bastille in 1989.

The Garnier, now used largely for ballet, is one of the world's great buildings. Yes, the composer Debussy famously likened it to a cross between a railway station and a Turkish bath, but it remains one of the most daring, elegant representations of a now-lost Western European confidence in the power of its art. As a secular temple, it might be likened to the cathedral of Notre Dame, not far away; if the great Gothic cathedrals are "symphonies in stone," then the Garnier is nothing less than *Faust* by Gounod.

More to the point, it is as described by Leroux in his novel, from the rooftop graffiti of the frolicsome "rats" (apprentice ballet dancers) right down to the subterranean body of water, five stories below the street, that figures so prominently in *Phantom*. Which is why, when I spied that metal door, I knew at once what it was. Having just reread the novel, I instantly linked Leroux's buried

SIPA PRESS

phonographic records to the plaque's inscription.

Later, in the opera company's library in the Rotonde de l'Empereur, I asked Martine Kahane, then head librarian, if she knew about the room. She did not. She could tell me only that Clark (1873-1950) was an American pioneer in the transition from wax cylinders to discs who ran the Gramophone Company's offices in Paris. And so I reported my find in several places, including the *Vanity Fair* article, which appeared in February 1988, and in my biography of Lloyd Webber, published in 1989. "No one is exactly sure what is in this room," I wrote in *Andrew Lloyd Webber: His Life and Works*, "but it seems that the spot where [the Phantom] died . . . is a time capsule, not to be opened until 2007" that likely "contains a representative sample of [Clark's] company's wares of the period."

With several other music critics, I petitioned the opera company to unseal the room, in case the gramophone records, or whatever was in it, were in urgent need of preservation. Kahane told us that Clark's gift had come with conditions—one of which was that the room not be opened until 2007—and that the conditions would be observed.

And so the Garnier ghosts were left undisturbed for two more years, when workmen installing air conditioning in the building's basement stumbled across the room once more. At that point, Jean-Jacques Beclier, the opera company's technical supervisor, had the room opened. What he found were four urns containing recordings, two buried in 1907 and two more in 1912. Sure enough, one of the newer urns had been damaged, so all four were removed and transferred without fanfare to the custody of the Bibliothèque Nationale de France until their 100-year interments were up.

Opening the 1907 urns, each of which contains 12 discs, is going to be tricky. According to Elizabeth Giuliani, assistant to the director of the audio-visual department at the Bibliothèque Nationale, the shellac discs were separated by glass plaques, which them-

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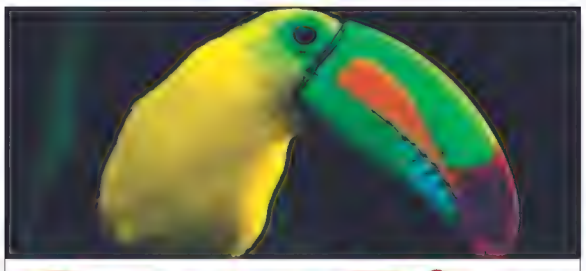

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The lake that features so prominently in *Phantom* had a real-life counterpart deep beneath the Palais Garnier: a reservoir (c. 1937) for water on the building site.

selves were kept from touching the surface of the discs by small glass cubes. The whole assemblage was then wrapped in cloth treated with asbestos, then placed inside copper urns, which were then put in urns made of lead. At least one of the urns is to be opened this month in a laboratory under strictly controlled conditions. Eventually the recordings will be transferred digitally and made commercially available by EMI, the successor to the Gramophone Company. Music lovers will once again hear the voices of the long dead singing the music of their time.

But in the meantime, the episode stands as a testament to Gaston Leroux's literary achievement—and raises an issue that has concerned me ever since I left music criticism to write novels and movies a decade ago: To what extent must fact be blended with fancy to create the willing suspension of disbelief? For me, a novel that is not about place is not much of a novel. It is instead a memoir of thinly veiled or nonexistent people wandering through a desolate and unreal landscape.

For why, after all, does *The Phantom of the Opera* still resonate? Surely not for its creaky plot, its standard-issue hero-

GASTON PARIS / ROGER VIOLLET / GETTY IMAGES

ine, its wooden swain, its Svengali-like villain. Not even for its romance, although that is surely part of its charm. The love story between the beautiful soprano and the disfigured composer has been exploited by everyone from Lon Chaney in 1925 to Joel Schumacher in his 2004 movie version of the Lloyd Webber interpretation.

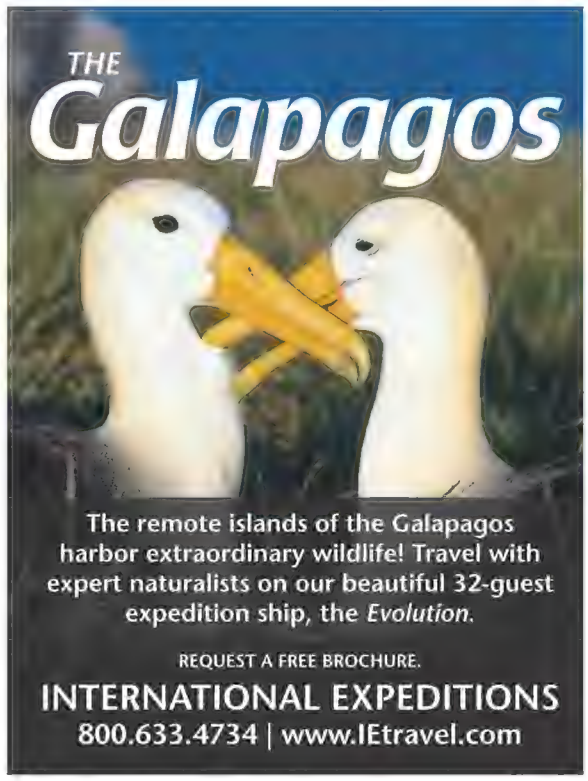
No, the reason we still read and watch *Phantom* is its setting: the Opéra itself. Above all, *Phantom* is a story of place. Firmly grounded in the soaring, underworldly glory of Charles Garnier's architectural masterpiece, it invites readers to partake of a mystery that, if not entirely real, is close enough. From Apollo's rooftop lyre to the mysterious lake 17 stories below, the building is as much a player—and is more lovingly observed—than any of the humans who live and love in its dark embrace.

What is Dickens without London, Mann without Lübeck and Davos? Could John Kennedy Toole's comic masterpiece, *A Confederacy of Dunces*, be set anywhere but New Orleans? Though we may forget the characters, it is the places that haunt our dreams and give birth to the stories. So here's to Gaston Leroux—not to his Phantom, but to his Opéra.

"I have prayed over his mortal remains, that God might show him mercy notwithstanding his crimes," the author muses after the discovery of the phantom's body at the end of the novel. "Yes, I am sure, quite sure that I prayed beside his body, the other day, when they took it from the spot where they were burying the phonographic records."

And yet the Phantom rose to live again, incarnated by Chaney and Claude Rains and Herbert Lom and and Michael Crawford and Gerard Butler. And now the real Opéra ghosts, Melba and Patti and Caruso, may soon be heard again in glorious song. Thanks to Leroux's eerily accurate sense of place.

MICHAEL WALSH *profiled Andrew Lloyd Webber for the October 2007 issue.*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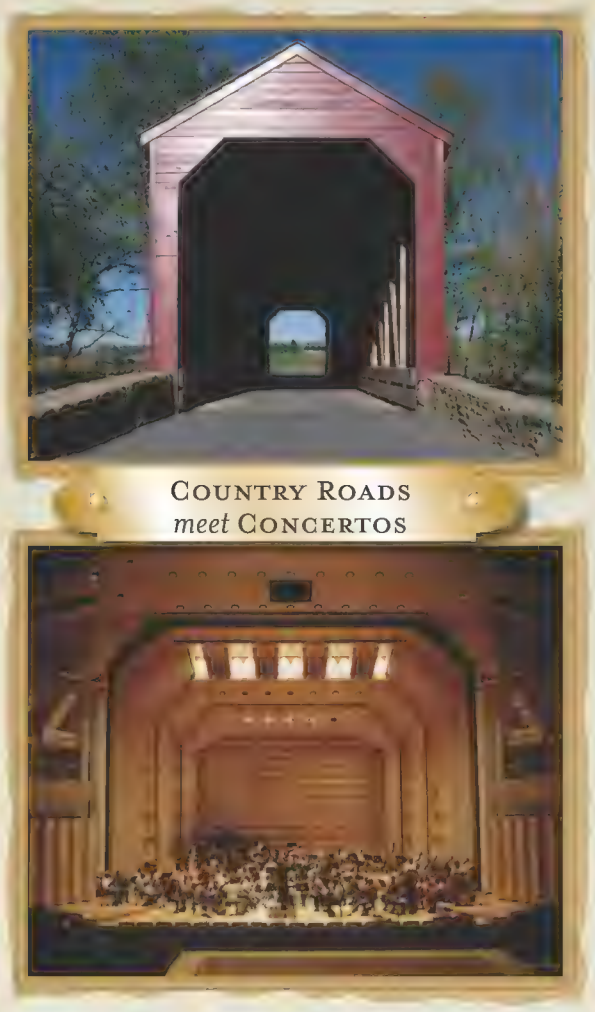

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TERENCE WITT

Theoretical physics has been hopelessly stalled for over 30 years. Moribund. Ossified. The Standard Model of particle physics uses over 20 ad hoc constants, and no one knows why they are necessary or why they have the values they do. Quantum physics and general relativity remain utterly incompatible. Cosmologists haven't the foggiest idea what could have caused the Big Bang or what, if anything, came before it. And finally, after over 30 years of effort, string theory hasn't even achieved the status of *science*.

There is a very simple reason for this catastrophic, intractable mess. Theorists stopped asking *why* a long time ago. Without the *why*, the search for mathematical symmetries becomes numerology, not science. No telescope or particle accelerator, regardless of its size, is going to tell us *why* the universe is the way it is. When the *why*'s remain unanswered, there is no understanding. When there is no understanding, there is no progress. But this sad situation is about to change forever.

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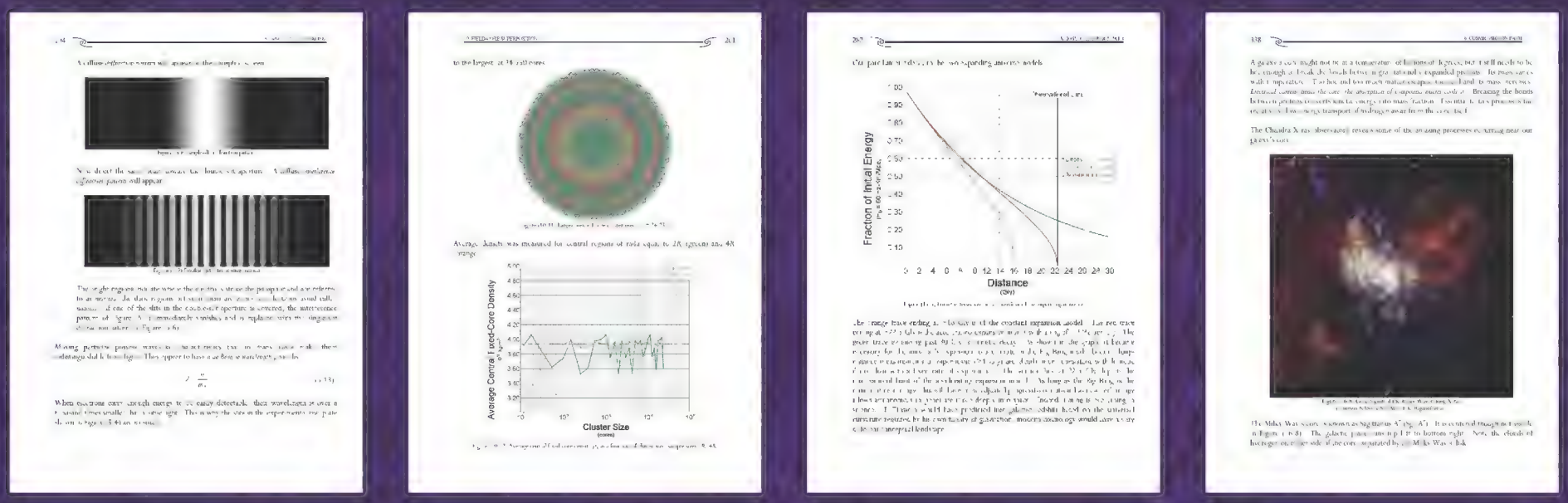

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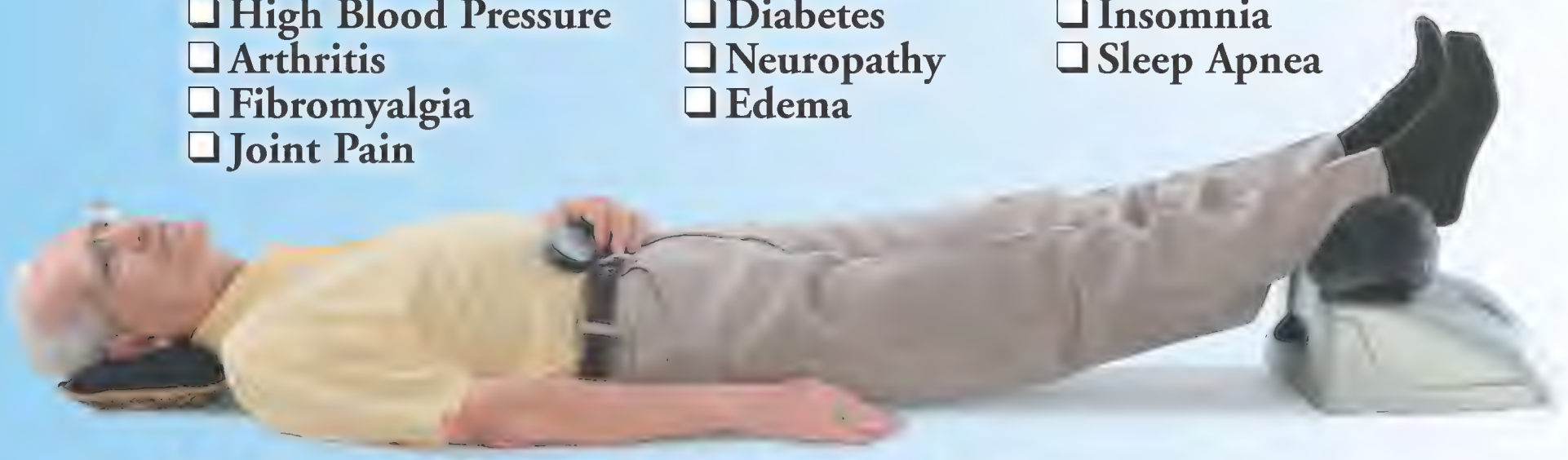

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What people are saying about the Exerciser 2000 Elite™

After using the Exerciser 2000 Elite™ twice a day for one week the swelling in my ankles went away. It has also helped my breathing, as I can get out and walk without having to stop and catch my breath! Thank you. *—Shirley H., Florida*

After having a stroke, I could no longer exercise the way I used to. As a result, I developed edema. A friend of mine introduced me to the Exerciser 2000 Elite™. I loved it and I purchased one for myself. After using the machine daily for a few weeks, my symptoms of edema were completely gone. I now use the machine twice a day for 16 minutes each time on speed 3. What a wonderful way to exercise.*—Robert M.*

I am in my late 80's and have diabetes. The first thing I noticed when I started using my machine was that my feet were warm when I went to bed. They were always ice cold before. Because one of my problems is poor circulation, I use the machine three times a day for 10 minutes each; in the morning, late afternoon and just before bed. I almost forgot to mention that I have not been able to lift my arms above my head. Now I can do it. You think that's no big deal until you can't do it anymore. *—Ralph K.*

As a Chiropractor, I would like to say that the Exerciser 2000 Elite™ enables people to benefit themselves at home. It is a valuable asset in moving lymph fluid, oxygenating the blood, increasing immune system function, maintaining mobility in the spine, and additionally freeing up a spine that has become stiff and arthritic. *—Garry Gorsuch, D.C.*

I love using the Exerciser 2000 Elite™ after my morning workout. It is an excellent way to cool down and it helps to start my day off right.*—Deanna C., Kansas*

My husband and I have been into natural products all of our lives but nothing has ever affected us like the Exerciser 2000 Elite™. My husband is 72 and delivers flowers. He carries 5 gallon buckets of water. Since using the machine, his back hasn't hurt him at all. My hips would hurt if I stood too long and I would get weak and have to sit down. Now I can walk and sit as long as I want. I don't take pain medication anymore. In the morning, when I get out of bed I'm not stiff anymore. At 65, wow, this is great! Thank you for offering such a great machine. We are going to tell everyone we know about it. *—Cheryl J.*

The ad I saw almost sounded "too good to be true". With your no risk money back guarantee I figured I had nothing to lose so I purchased the machine… and boy, am I glad I did! I am 75 years old and suffer from sciatica, which makes my back and legs tighten up and causes numbness. I was taking 8-10 Aleve™ every day. After using the machine for only 4 minutes, I noticed my lower back loosening up. Since I have been using the machine I haven't taken any pain pills and have been pain free. My sciatica is not giving me problems anymore and my body stays loosened up. I have also had a snoring problem for quite some time, however, since using the machine my snoring has subsided. My wife is so excited! I cannot tell you how much this machine has turned my life around. *—C. Cummings*

I have had constipation problems for over 25 years. Since I have been using the Exerciser 2000 Elite™ I have been regular every day and have begun to lose weight. This is truly a blessing and is so easy to use. *—Jeannie*

I had suffered with sleep apnea for many years and had been taking drugs for it. I was told I would have to use a breathing apparatus. In the meantime, I was introduced to the Exerciser 2000 Elite™ and decided to purchase one. Within two weeks, I was sleeping more deeply and restfully than ever before. *—David B.*

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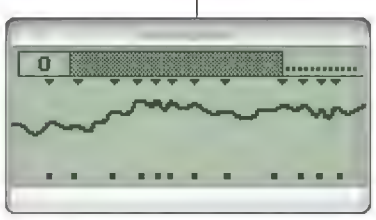
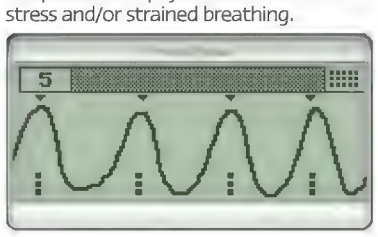


BEFORE: StressEraser indicators show the presence of physical and emotional stress and/or strained breathing.



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Surprisingly, probability can be used to make a variety of decisions—one example is football. Here, p is the probability of the offensive team passing the football on 3rd and long yards.

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Professor Michael Starbird is a distinguished and highly popular teacher with an uncommon talent for making the wonders of mathematics clear. He is Professor of Mathematics and a Distinguished Teaching Professor at The University of Texas at Austin, where he has received the President's Associates Teaching Award, the Jean Holloway Award for Teaching Excellence, and the Friar Society Centennial Teaching Fellowship.

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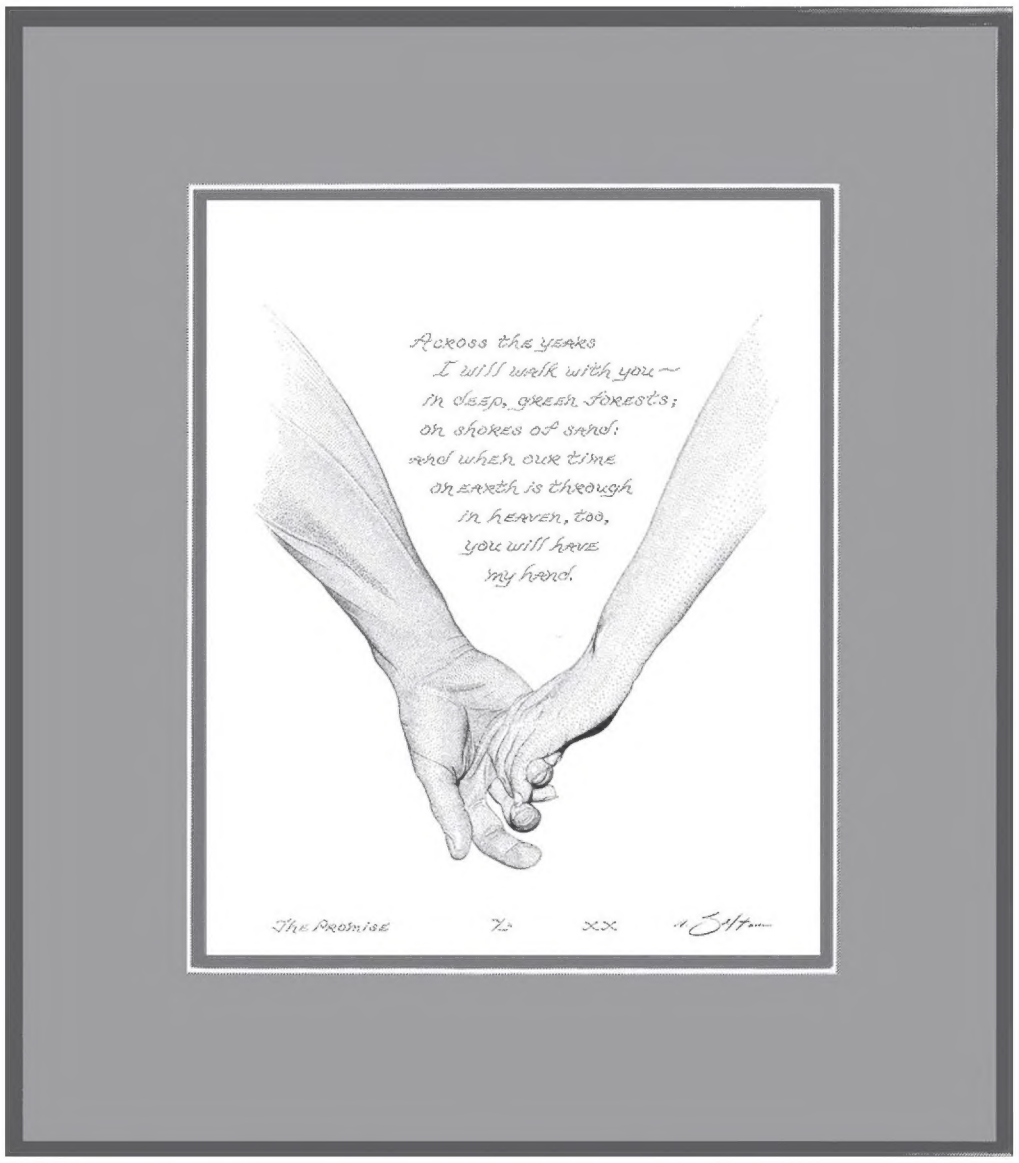

The poem reads: *"Across the years I will walk with you -*
in deep green forests; on shores of sand:
and when our time on earth is through,
in heaven, too, you will have my hand."

Dear Reader,

The drawing you see above is called "The Promise." It is completely composed of dots of ink. After writing the poem, I worked with a quill pen and placed thousands of these dots, one at a time, to create this gift in honor of my youngest brother and his wife.

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Richard W. Wetherill
1906-1989

Well, think about how you surrender your will to laws of nature. Do you argue with gravity, ignore friction, grab a live wire, lean to the left turning right?

People have learned to surrender to creation's natural laws, or they might wish they had if they were still alive.

Along with familiar laws such as gravity and momentum, we survivors surrender our will to them, except when we make a mistake and fail to conform. For example, when we lose our balance, slip on a wet surface, get electric shocks or burns, or lean in a wrong direction, we instinctively struggle to conform to the appropriate natural law.

Early in the past century a natural ***law of behavior*** was identified by the late Richard W. Wetherill.

He called it the ***law of absolute right***, and it specifies behavior that is rational and honest to replace behavioral choices based on people's likes and dislikes, wants and don't wants, judgments and beliefs.

The law of absolute right states that right action gets right results, whereas wrong action gets wrong results.

What kinds of results are occurring everywhere? The daily news reports multiple wrong results in the form of international wars, gang wars, family fights and suicides; criminal activity; natural disasters; and afflictions labeled "cause unknown."

You might be wondering, who thinks that conforming to a natural law could reverse such wrong results?

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The nonprofit organization financing this advertisement is using the media to tell people that their safety and security exist in trusting the laws of creation rather than trusting the *beliefs* of human origin.

Virtually everybody knows that each natural law relentlessly pursues its particular purpose.

That is easily observed when using gravity as an example. When people stumble and fall, they do not form criticisms of gravity. They are more likely to look around for someone or something else to blame—sometimes even their own carelessness.

People instinctively know that nature's laws of physics require conformity if they intend to achieve success and avoid failure at what they are doing.

Prior to the identification of the laws of physics, the ancients worshipped natural phenomena and/or idols. It required eons until people identified the natural laws that created the forces guiding their activities and, further, that those laws were immutable and inviolable—not to be worshipped but to be conformed to.

Thus it is with creation's law of absolute right. Considering the evidence of perfection in the creation of the universe and its inhabitants, people are now being similarly educated by natural law to conform to perfect behavior as prescribed by who or what the creator is. The change to rational, honest thought and action eliminates all human wrongs, allowing the emergence of a perfect world.

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Text by E. Marie Bothe, President of The Alpha Publishing House.

Innovative Safety Technology

Are you missing the luxury of warm, relaxing baths? Well, grab your towel!

By John Fleming

For many of us, nothing is more relaxing than a long, luxurious bath. Unfortunately, because of safety concerns, many people, particularly older people, have to forego this simple pleasure. Sure, you can spend big bucks to remodel your bathroom to provide a bathtub you can use, but who wants to do that? Now there's a better way, and it lets you use the bath that's in your home today.

Questions about the Archimedes Bath Lift?
Try our pre-recorded Bath Lift Toll-Free Hotline
1-866-254-4716

If you or a loved one has given up bathing because of age, mobility or safety concerns, the Archimedes Bath Lift by Mangar International is the answer. It is so simple, you'll wonder why no one thought of it earlier. The battery-operated "chair" safely and steadily lowers you to the bottom of the tub, and when you're done bathing, it gently raises you back to the top of the tub assuring a comfortable and safe exit from the tub. The remote is fully waterproof, so your bath won't be a "shocking" experience.

Enjoy your bath again without the risk of slipping

- *Charges overnight*
- *Fully waterproof remote*
- *Battery operated*
- *Portable*
- *High backrest, and wide seat*
- *Chair raises up to 17" and lowers to 3"– or anywhere in between*
- *Transfer flaps for added stability*

This innovative chair recharges overnight (don't worry, if there's not enough power stored for a full lower/raise cycle, it will not operate), features an easy-to-use hand control, and is designed for comfort and support. It's lightweight (less than 25 pounds assembled), and easily portable. It features a wide seat and high backrest for maximum comfort and support.

Rediscover the simple pleasure of a warm, relaxing bath with our exclusive home trial. Try the Archimedes Bath Lift for up to 90 days, and if you are not completely satisfied, simply return it for a refund of the product purchase price.* Call today.

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Call now for our lowest price!

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330 lb weight capacity.

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Electrocybertronics

Marketing through pseudoscience **BY ALEX BOESE**

WANT TO PUT your company or product on the cutting edge of science? Simple. Add a trendy prefix or suffix to its name. But beware: what linguistic fashion raises up, it can also bring down.

Electric. In the 19th century, electricity represented the future, so marketers affixed "electro" prefixes to any and everything. Consumers could purchase Dr. Hallock's Electric Pills ("for weak, worn-out, or nervous people") or Electro-Silicon Polishing Powder for touching up your silver. Such products shared a common trait: they had absolutely nothing to do with electricity, though just thinking about the Galvano-Electric Regenerator ("a certain cure for Spermatorrhea, Impotency, Seminal Losses, &c.") must have caused some to feel tingly all over. At least Electro-lumps—a marketer's brainstorm for coal—could actually generate electric current.

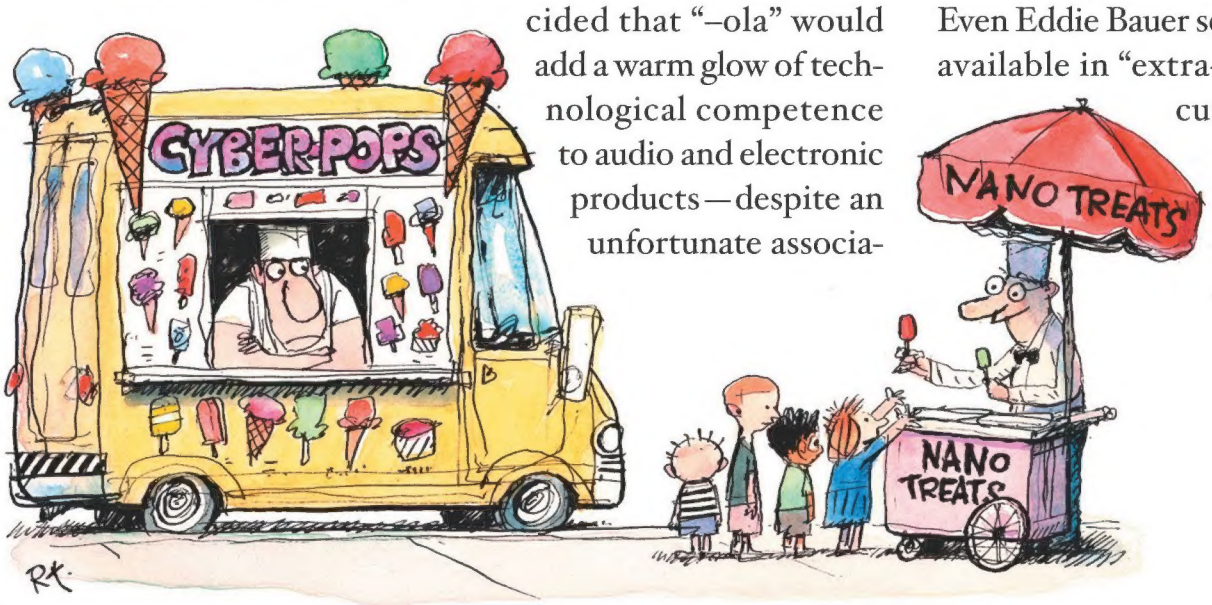
-ex. How or why the "–ex" suffix came to be associated with things scientific has baffled researchers. (One theory holds that it evokes such highbrow, Latin-derived technical terms as "convex" and "cortex.") During the first half of the 20th century, -ex's multiplied like wire hangers in a coat closet: Pyrex, Sinex, Playtex—and let's not forget Kleenex. But progress marches on and recent decades have favored a new and improved version: "–ix." Thus, we now have Technix (a manufacturer of rubber and plastic products) and even—double or nothing—Solarix Intellectronix (a search engine). In 2005, a European court dismissed a trademark infringement case brought by publishers of the *Asterix* comic strip against the MobiliX software project. With this legal hurdle cleared, ixpect an –ix-filled ixistence.

-ola. During the early 20th century, manufacturers decided that "–ola" would add a warm glow of technological competence to audio and electronic products—despite an unfortunate association with such infectious diseases as rubeola. The fad began with a player piano trademarked in 1900 as Pianola. (Arthur Loesser, a piano historian, said the suffix "sounded easily mechanical, playfully pleasant.") Then, along came Victrola, Radiola, Rock-Ola, Moviola and Motorola. But "ola" fell out of favor during the "payola" radio scandals of the 1960s (until the food industry resurrected it for a range of wholesome, nutritious wannabes such as Bran'nola and canola).

-tronics. In its April 1961 issue, *Time* magazine noted that "a stock whose name suggests either electronics or technical mystery seems sure to have a jump in price." Certainly "-tronics" were everywhere: Radiatronics, Eltronics and Powertron Ultrasonics. This magical suffix did not prevent many of such companies from short-circuiting when the -tronics stock bubble ultimately burst in 1962.

Cyber- Author William Gibson is usually credited, or blamed, for the "cyber" prefix because he introduced the concept of "cyberspace" in his 1984 novel *Neuromancer*. By the mid-1990s, cyber-mania was in full swing, producing such oddities as Chanel's Cyber Glow cosmetics and designer Betsey Johnson's "Suzie Cyber" fashion line, despite, one journalist noted, that "in cyberspace no one can see what you're wearing." By the end of the decade, cyber-nausea had set in and overusers of the term were banished to Cyberia.

Nano- Lately the prefix trend has been shrinking. During the 1980s, "mini-" gave way to "micro-," which has yielded to "nano-." In the new millennium, companies such as Nanometrics, Nanogen and NanoPierce Technologies have all embraced the prefix, despite complaints their products were hardly nano-scale (a billionth of a meter or smaller). Even Eddie Bauer sells stain-resistant nano-pants. (They're available in "extra-large" for the retailer's not-so-nano customers.) Proceeding down the scale leads one inexorably to yocto-, a metric prefix meaning one-septillionth. If you're thinking of trademarking yocto, you'd better move fast, before the iPod Yocto appears on store shelves.



RICHARD THOMPSON

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